**3GPP T****SG-RAN WG2 Meeting #121bis electronic R2-230xxxx**

**E-meeting, 17th Apr- 29th Apr, 2023**

**Agenda item: 6.1.3.1**

**Source: vivo**

**Title: Report of [AT121bis-e][008][NR17] RRC MUSIM Corrections**

**Document for: Discussion and Decision**

# 1 Introduction

This contribution is aimed at reporting the discussion and results of the following offline discussion:

* [AT121bis-e][008][NR17] RRC MUSIM Corrections (vivo)

      Scope: Treat R[2-2303262](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303262.zip), R2-2303661, R[2-2303770](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303770.zip), R[2-2303771](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303771.zip), R[2-2303831](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303831.zip), R[2-2303876](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303876.zip), R2-2303195
Ph1: Determine agreeable parts, identify online CB if any. Ph2: For agreeable parts, if any, reflect these in agreeable CRs.

      Intended outcome: Report, If applicable: In-Principle-Agreed CRs

      Deadline: Schedule 1

A **first round** with **Deadline W1 Thursday April 20th 1200 UTC** to settle scope what is agreeable etc

A Final round with **Final deadline W2 Tuesday April 25th 1000 UTC (EOM)** to settle details / agree CRs etc.

The discussion scope is to gather companies’ views on the contributions [1]-[7].

# 2 Participants

To facilitate this offline discussion among the delegates, would you please fill in your name and the email address in the table below.

|  |  |
| --- | --- |
| Delegate name | E-mail address |
| Boubacar Kimba | kimba@vivo.com |
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| LGE | hassium.kim@lge.com |

# 3 Discussion

## 3.1 Handling of MUSIM scheduling gap(s) during handover

In the previous meeting, RAN2 discussed how to handle MUSIM gap(s) during handover but no decision was made as per below:

R2-2301711 Further Clarification on the MUSIM Scheduling Gap Handling During Handover ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_MUSIM-Core

- Apple wonder under what circumstances the network need to accept.

- Samsung think the UE will always transmit preference in the new cell and the base-station will reconfigure the UE.

- ZTE think that if the gap is ongoing, the source should forward the configuration.

- Samsung think the network will reconfigure.

- Intel think we need to think about the UE behaviour.

Chair: can think about how/if to clarify UE behaviour for this case for next meeting

* Postponed.

This issue has been discussed in contributions [1~5] with the following proposals :

|  |  |
| --- | --- |
| Tdoc No. | Relevant Proposals |
| R2-2303831 [1] | Proposal: Confirm that if the latest received musim-GapConfig is set to setup but musim-AperiodicGap is absent during the RRC reconfiguration procedure with or without HO, the UE still applies previously configured aperiodic MUSIM gap (if any) before its period is over. No specification change is needed. |
| R[2-2303876](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303876.zip) [2] | Proposal 2: Ran2 to discuss the below options for the UE side MUSIM Gap processing before the UE receiving the new MUSIM gap configuration at the new cell.* Option 1: Keep the original MUSIM gap configuration.
* Option 2: Reconfigure the MUSIM gap based on the new cell’s SFN/FN. Target.
* Option 3: Release all of the Configured MUSIM Gaps.

Proposal 2a: Option 1 and option 3 can be taken as the start point. |
| R2-2303661 [3] | 1. RAN2 to select between two options on how to handle aperiodic gaps during handover:
* solve it by NW implementation e.g. MUSIM-GapConfig is released by target node upon handover;
* change Need code of musim-AperiodicGap from N to R;
 |
| R[2-2303262](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303262.zip) [4] | Proposal 1: No spec change is needed for MUSIM gap handling during sync HO.Proposal 2: No spec change is needed for MUSIM gap handling during async HO. |
| R[2-2303195](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303195.zip) [5] | Proposal: Aperiodic gap configuration handling during handover can be left to NW and UE implementation. No specification changes needed for this scenario. |

From companies’ contributions proposals above, there are different options to handle the MUSIM gap during handover (which include sync and async handover) as summarized below.

* **Option 1**: Left to NW and UE implementation. No specification change is needed.
* **Option 2**: Keep the original MUSIM gap configuration.
* **Option 3**: Reconfigure the MUSIM gap based on the new cell’s SFN/FN.
* **Option 4**: Release all of the Configured MUSIM Gaps.
* **Option 5**: Change Need code of musim-AperiodicGap from N to R.
* **Option 6**: other (please specify)

Thus, companies are invited to provide their preference on which option(s) to consider to address MUSIM gap handling during handover.

**Q1: Which option do you prefer to address MUSIM gap handling during handover?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option**  | **Detailed comments** |
| vivo | Option 1 | Option 1 is simple and does require any new changes to current specification |
| Xiaomi | Option 1 | We think that the network implementation based solution is able to provide a proper configuration during handover. |
| Ericsson | Option 1, but | We think option 1 is sufficient, but if majority would prefer to pursue a change, we think option 5 is the simplest. |
| Huawei/HiSilicon | Option 1 | NW implementation (as mentioned in R[2-2303661](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303661.zip)) can address the issue. |
| ZTE | We can follow the majorities (e.g. option 1) but we think at least a note shall be added | According to the current spec, the UE may configure the Gap that are not aligned with the network side during the async handover. Besides, according to the submitted papers, the network may also release the MUSIM-GapConfig if the target node can’t configure the not-started aperiodic Gap, or if there is potential collision between the handover procedure and MUSIM gaps.So some clarification would be needed to note/solve these issues.We think at lease a note shall be added to the MUSIM Gap configuration (e.g. 38.331 5.3.5.9a)Note: Network may release the MUSIM-GapConfig upon handover, e.g. when the target gNB and the source gNB are unsynchronous. |
| OPPO | Option1 | Option1 is flexible and workable. |
| Sharp | Option 1 | At this late stage, solution without specification impact is preferred. |
| Nokia | Option 1 | Spec changes are not needed |
| MediaTek | Option 1 | No SPEC change is needed |
| Intel | Option 1 | This is really a corner case where the network has provided the aperiodic gap and before it starts, updates the periodic gap and can be addressed by network implementation. IF we really wanted to allow release of the aperiodic gap, we should have used Need R but don’t see it as an essential change. |
| Apple | Option 1 | This is a very corner case. Agree with Intel. It is better left to UE implementation. No specification change is needed. |
| LGE | Option 1 | This issue is unlikely to happen. In most cases, the UE will request again if necessary, and the network will reconfigure the gap. |

**Summary：**

**11/12** companies support option 1(Left to NW and UE implementation. No specification change is needed), and only **1** company. that can follow majority view, suggests to add a note such as” Network may release the *MUSIM-GapConfig* upon handover, e.g. when the target gNB and the source gNB are unsynchronous.”. Due to overwhelming majority preference, Rapporteur proposes.

**Proposal 1: RAN2 to agree that on how to handle MUSIM gap during handover is left to NW and UE implementation. No specification change is needed.**

## 3.2 Corrections on CHO execution while T346g is running

It was agreed in RAN2#119bis meeting to add the following NOTE in clause 5.3.7.2: “NOTE: It is up to UE implementation whether to initiate the procedure while T346g is running.”.

The contribution in [6] thinks that the same situation as re-establishment can also happens on CHO case and proposes to add a NOTE:“ It is up to UE implementation whether to execute the CHO procedure while T346g is running.” From the rappporteur‘s understanding, the same situation can happen on many cases, such as CAPC etc. If the change proposed above is agreed, there will be many cases that also require the same changes.

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| --- |
| 5.3.5.13.5 Conditional reconfiguration executionThe UE shall:1> if more than one triggered cell exists:2> select one of the triggered cells as the selected cell for conditional reconfiguration execution;1> else:2> consider the triggered cell as the selected cell for conditional reconfiguration execution;1> for the selected cell of conditional reconfiguration execution:2> apply the stored *condRRCReconfig* of the selected cell and perform the actions as specified in 5.3.5.3;NOTE: If multiple NR cells are triggered in conditional reconfiguration execution, it is up to UE implementation which one to select, e.g. the UE considers beams and beam quality to select one of the triggered cells for execution.NOTE: It is up to UE implementation whether to execute the CHO procedure while T346g is running. |

**Q2: Do companies agree the change proposed above by R**[**2-2303771**](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303771.zip) **[7]?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Detailed comments** |
| vivo | No | This seems some optimization. We do not think anything is broken without these changes |
| Xiaomi |  | No strong preference. We can follow the majority view, as the same issue was resolved in RAN2#119bis meeting. |
| Ericsson | No | Agree with Vivo. Also for regular HO case we did not agree to any change, so we do not think we should deviate from this for CHO. |
| Huawei/HiSilicon | No | Agree with Vivo |
| ZTE |  | No strong preference. We can follow the majority view |
| OPPO |  | We can follow the majority view. |
| Sharp | No | Agree with vivo. |
| Nokia |  | We slightly prefer to have this NOTE.  |
| MediaTek | No strong view | We have some sympathy on the intention. We think UE will not trigger CHO in this scenario. Whether to have a NOTE is not critical.  |
| Intel | No strong view | We are OK with the proposed change if there is a majority to have it.  |
| Apple |  | Similar to MediaTek. UE impleenation would not trigger CHO in this scenario. |
| LGE | No | Agree with the rapporteur, we slightly prefer not to have this. It would be better to take a minute at the chair’s note for this. |

**Summary:**

12 companies have provided inputs on the question. There 5 companies do not agree to the proposed change. 1 company slightly prefer to the proposed change. One company can follow majority view. 5 companies tend to No strong view. Due to lack of sufficient support for the proposed change, Rapporteur proposes:

**Proposal 2: RAN2 to agree to NOT pursue the potential issue of CHO procedure while T346g is running discussed in R2-2303770 and its corresponding change proposal in R2-2303771.**

# 5 Conclusion

This offline discussion report is summarized with final proposals as follows:

**Proposal 1: RAN2 agree that: on how to handle MUSIM gap during handover is left to NW and UE implementation. No specification change is needed.**

**Proposal 2: RAN2 to agree to: NOT to pursue the potential issue of CHO procedure while T346g is running discussed in R2-2303770 and its corresponding change proposal in R2-2303771.**

# 6 Reference

1. R[2-2303831](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303831.zip), Further discussion on handling of aperiodic MUSIM gap, Samsung
2. R2-2303876, Further Clarification on the MUSIM Gap Handling During Handover, ZTE Corporation
3. R[2-2303661](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303661.zip), Handling of MUSIM Scheduling Gap During Handover, Ericsson
4. R2-2303262, Discussion on MUSIM gap handling during handover, vivo
5. R[2-2303195](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303195.zip), On aperiodic MUSIM gap handling during handover, Nokia
6. R[2-2303770](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2023%5CRAN2%20121b%5CR2-2303770.zip), Discussion on CHO with T346g in MUSIM, Lenovo
7. R2-2303771, Correction on CHO execution while T346g is running, Lenovo