**3GPP TSG-RAN WG2 Meeting #127bis R2-2409358**

**Hefei, China, Oct 14th – 18th, 2024**

Source: ZTE Corporation

**Title: Report of [AT127b][105][MOB] (ZTE)**

Agenda item: 7.4.2

Document for: Discussion and decision

# 1 Introduction

This document is to handle the following email discussion:

* [AT127b][105][MOB] (ZTE)

 **Scope:** To discuss correction on R2-2408522 (including need of correction).

 **Intended outcome:** 37.340 CR in R2-2409357 to be in principle agreed. Discussion summary in R2-2409358 if needed. Email approval.

**Deadline:** Thursday 10:00am.

The participants are invited to provide their contact information in the following table.

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| --- | --- |
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# 2 Discussion

In R2-2408522 [1], three changes are proposed to address some miscellaneous clarification/editorial changes:

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| ***Reason for change:*** | To address some miscellaneous clarification/editorial changes:1. At last meeting, we made some clarifications on the definition of subsequent CPAC by adding “(conditional)” for PSCell addition/change, i.e. the PSCell addition/change also include the conditional case. Some similar clairfication can also be applied for PCell change and some other places of the related description.
2. At last meeting, we made some clarifications on the meaning of “SN format” and “MN format”, and corrected them to “in an SN RRC message” and “in an MN RRC message”, respectively. But the clarification is missed in some places where MN/SN format is still used.
3. If both intra-SN and inter-SN candidate PSCell(s) are configured simultaneously, the SN initiated intra-SN subsequent CPAC with MN involvement procedure shall be used to configure subsequent CPAC for intra-SN candidate PSCell(s). In such case, the security update configuration shall be provided for both intra-SN and inter-SN candidate PSCell(s). In the current SN initiated intra-SN subsequent CPAC with MN involvement procedure, it’s specified that a nested MN initiated SN modification procedure may be triggered when an SN security key change needs to be applied, but it's unclear how to provide the secuirty update configuration for candidate PSCell(s).
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| ***Summary of change:*** | 1. Added “(conditional)” before PSCell addition, PSCell change and PCell change in some descriptions of subsequent CPAC in section 3.1, 10.3.2 and 10.20.
2. Updated “in SN format” and “in MN format” to “received via an SN RRC message” and “received via an MN RRC message” in section 10.20.
3. Added a note “If there are prepared candidate PSCell(s) in other (candidate) SN(s), the MN may provide a list of KSN and associated sk-Counter values to the SN via the nested MN-initiated SN Modification procedure.” in SN initiated intra-SN subsequent CPAC with MN involvement in section 10.20.

**Impact Analysis**Impacted 5G architecture options: NR-DCImpacted functionality:Subsequent CPACInter-operability:1. If the network is implemented according to the CR and the UE is not, there is no inter-operability issue. 2. If the UE is implemented according to the CR and the network is not, there is no inter-operability issue. |

The 1st and 2nd changes are editorial corrections, to implement some corrections (which have been agreed at last meeting) to places where similar changes were missed in the current spec.

**Question 1: Do you agree with the 1st and 2nd changes proposed in R2-2408522?**

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| Company | Yes/No | Comments if any |
| Huawei, HiSilicon | 1 : no, 2:yes | The addition of "(conditional)" in several places gives the impression that when there is not "conditional", then it does not apply e.g. for PSCell change section, but this is not correct.In the "definition" of SCPAC:- if "based on pre-configured subsequent CPAC configuration" refers to "conditional PSCell addition or change" at the beginning of the definition, then Rel-17 CPAC matches with the definition- if it refers to "that is executed after etc" then non-conditional procedures can be based on subsequent CPAC configuration.A proper definition would be "A subsequent CPAC configuration is a CPA/CPC configuration which is not released by the UE upon PCell change, PSCell change (conditional or not) or SCG release.". Also the first sentence of 10.20 should be removed as it is redundant. |
| Nokia | 1:no; 2:see comments | Agree with HW. The SCPAC can be executed after normal SCG addition also. Change is not essential. OK to consider HW proposal with the change that “which is not implicitly released by UE” On 2nd change: In RRC spec, the reconfiguration is referred as configuration via MCG not MN. So suggest to change it is as MCG RRC message and SCG-RRC Message instead of MN/SN.[ZTE] In the current stage-2 spec, “MN/SN RRC message” have been used in several places referring to the RRC message generated by the MN/SN, instead of MCG/SCG RRC message. So I guess it’s fine to keep the current wording. |
| Ericsson | Yes, to both. | The addition of (conditional) clarifies that it could be either a conditional PSCell change or a legacy PSCell change. If (conditional) is not added, it gives the impression that only a legacy PSCell change can be executed and that is not the case. |
| LGE | 1: No strong view2: Yes | For 1st change, it may be better to add ‘conditional PSCell change or non-conditional PSCell change’ instead ‘(conditional) PSCell change’ as a compromise. |
| ZTE | Yes, to both. | Proponent.Agree with Ericsson that the addition of (conditional) is to clarify either conditional or non-conditional procedure is supported.But if companies think “(conditional)” is unclear, we are also fine to add “(conditional or non-conditional)” to indicate both cases explicitly. Regarding the definition of “subsequent CPAC”, it’s fine to consider the suggestion from Huawei and Nokia, e.g.:**Subsequent Conditional PSCell Addition or Change (subsequent CPAC)**: a conditional PSCell addition or change procedure that is executed ~~after a PSCell addition, a PSCell change, a PCell change or an SCG release~~ based on pre-configured subsequent CPAC configuration ~~of candidate PSCell(s) without reconfiguration and re-initiation of CPC/CPA~~ which is not implicitly released by the UE upon (conditional or non-conditional) PCell change, (conditional or non-conditional) PSCell change or SCG release.For the first sentence of 10.20, since it’s usually to add the definition of a feature in the beginning of the section, e.g. as CPC in section 10.6 and CPA in section 10.2.3, we prefer to keep it and align it with the definition. Besides, in order to avoid the confusion that some places without addition of (conditional), e.g. some legacy texts for CPA/CPC, only implies the non-conditional case, I guess we can just add (conditional or non-conditional) in the definition to make it clearer, but no need to change other texts.  |
| Samsung | Yes, to both | Adding “(conditional)” can correctly reflect the definition of SCPAC.  |
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The 3rd change is to clarify for which cases the SN security update configuration is required, and how to provide the SN security update configuration for intra-SN SCPAC with MN involvement procedure, to make the current procedure clear.

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| 2/3. The MN initiated SN Modification procedure may be triggered by *SN Modification Required* message, e.g. when an SN security key change needs to be applied.NOTE 12: For SN terminated bearers to be setup for which PDCP duplication with CA is configured in NR MCG side, the SN allocates up to 4 separate Xn-U bearers and the MN provides a logical channel ID for primary or split secondary path to the SN via the nested MN-initiated SN modification procedure.NOTE X: If there are prepared candidate PSCell(s) in other (candidate) SN(s), the MN may provide a list of KSN and associated sk-Counter values to the SN via the nested MN-initiated SN Modification procedure. |

**Question 2: Do you agree with the 3rd change proposed in R2-2408522?**

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| Company | Yes/No | Comments if any |
| Nokia | No | The SK-counter list is relevant for Inter-SN SCPAC scenario and this NOTE under Intra-SN SCPAC with MN involvement is not needed. In fact if MN need to initiate this procedure for Inter-SN it need to be in the procedure text for Inter-SN procedure. Again the term “nested” is not preferred in the procedure text.[ZTE] The current procedural text has specified that “2/3. The MN initiated SN Modification procedure may be triggered by SN Modification Required message, e.g. when an SN security key change needs to be applied.”, but it’s unclear for which case the SN security key change needs to be applied and how to provide the SN security key configuration during the Intra-SN SCPAC with MN involvement procedure. It should be noted that the current stage-2 procedure is not only for intra-SN SCPAC execution, but also to prepare the intra-SN SCPAC with MN involvement configuration (which is not a one-shot configuration, but to be used multiple times for subsequent CPAC execution). If there are inter-SN candidate PSCells prepared, the MN shall also provide the security update configuration for intra-SN candidates, to allow the subsequent CPAC, e.g. when the UE firstly switches to a inter-SN candidate and then switches back to the intra-SN candidate.The addition of note just to clarify a possible case to provide sk-counter list during the **SN initiated** Intra-SN SCPAC with MN involvement procedure. Although, we have added a note for providing the sk-counter list to the source SN via MN-initiated SN modification procedure in the procedural text for inter-SN (i.e. Figure 10.20-2: Subsequent CPAC - SN initiated), see below:

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| NOTE 7a: The MN may decide to reconfigure the source SN as a candidate SN. In this case, the descriptions in the above steps 2-3 apply the same with the source SN, except that it is the MN that provides the list of proposed PSCell candidates for the source SN (as a candidate SN), and that the MN-initiated SN modification procedure is used with the source SN instead of the MN-initiated SN addition procedure. In the subsequent steps, the descriptions for any candidate SN also apply the same to the source SN (as one of candidate SN(s) for the subsequent CPAC) unless explicitly stated otherwise. |

The note 7a is for MN initiated intra-SN SCPAC case since it’s MN decide to configure the source SN as a candidate SN. But the newly added note is for SN initiated case, which is a different scenario.Besides, the “nested” has been used in the above Note 12. If companies do not like this, it’s also fine to remove it. |
| Ericsson | Yes |  |
| LGE | No | In this procedure i.e. intra SN SCAC, doesn’t use the list of sk-Counter. Thus, we think the Note seems not needed.The procedure of inter SN SCPAC is clearly described that MN provides the list of k-Counter and this procedure of intra SN SCPAC is based on the list information. Thus, the change may cause additional ambiguity of security handing.[ZTE] Please see our responses above. The note is for a different scenario where the source SN initiates the intra-SN SCPAC procedure, but not for the scenario where the MN decides to configure the intra-SN SCPAC (i.e. MN initiated case). |
| ZTE | Yes | Proponent. |
| Samsung | Yes  | Although it is under “SN initiated intra-SN subsequent CPAC with MN involvement”, the UE may be also configured with some inter-SN candidate PSCells. Thus, it is better to capture this note.  |
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**Any other comments:**

**Question 3: If companies have any other issues or proposed changes, please comment in the table below:**

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| Company | Yes/No | Comments if any |
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# 4 Conclusion

TBD

# 5 References

1. R2-2408522 Corrections for mobility enhancements in stage-2 ZTE Corporation, Ericsson CR Rel-18 37.340 18.3.0 0404 - F NR\_Mob\_enh2-Core