3GPP TSG-RAN WG4 Meeting # 107 R4-23xxxxx

Incheon, KR, May 22 – May 26, 2023

**Agenda item:** 8.9.4

**Source:** Moderator (OPPO)

**Title:** Topic summary for [107][210] NR\_RRM\_enh3\_part2

**Document for:** Information

# Introduction

*Briefly introduce background, the scope of this summary (e.g. list of treated agenda items).*

This summary includes RRM Core requirements for FR1-FR1 NR-DC (8.9.3).

# Topic #1: RRM Core requirements for FR1-FR1 NR-DC

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

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| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2307323**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2307323.zip) | Apple | ***Proposal 1: If UE has detected either BFD or RLF on the deactivated PSCell for RACH-less SCG activation, UE fall back to RACH based activation.******Proposal 2: During FR1 PSCell activation, if TCI is unknown due to beam failure, UE shall indicate network the beam failure as same as the beam failure indication of the PSCell to the network while the SCG is deactivated; or send LS to RAN2 for clarification if RAN4 cannot decide.*** |
| [**R4-2307710**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2307710.zip) | vivo | **Proposal 1: RAN4 to ask RAN2 for clarification on the case that BFD happens during SCG activation procedure** |
| [**R4-2307957**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2307957.zip) | Xiaomi | **Observation 1: It is aligned with the current specification that if UE has detected either BFD or RLF on the deactivated PSCell for RACH-less SCG Activation UE shall fall back to RACH based activation.****Proposal 1: No further clarification is needed for the existing RACH-less based SCG activation requirements for FR1+FR1 NR-DC.** |
| [**R4-2308320**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2308320.zip) | Huawei, HiSilicon | **Observation 1: When RLF happens during SCG activation procedure, UE shall indicate SCG failure to NW, and the SCG activation is stopped.****Observation 2: When BF happens during SCG activation procedure, UE will initiate RACH procedure. Whether the SCG failure for BF is transmitted or not is not essential.****Proposal 1: If UE has detected BFD on the deactivated PSCell for RACH-less SCG Activation, UE fall back to RACH based activation as required in TS 38.321, and no impacts on RRM requirements.****Proposal 2: It is a corner case when beam failure happens the PSCell during PSCell activation, and whether to report beam failure can be up to UE implementations.** |
| [**R4-2308483**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2308483.zip) | OPPO | **Observation 1: The condition ‘no RLF/BF occurred’ is not enough to guarantee PSCell could always be known and cell detection could not be skipped.****Proposal 1: Keep current requirements definition based on known/unknown PSCell in RAN4.****Proposal 2: UE can report beam failure of the PSCell to the network during SCG activation procedure.** **Proposal 3: UE should fall back to RACH based activation and there is no need to specify new requirements such as additional measurements delay for the case UE detected either BFD or RLF on the deactivated PSCell.****Proposal 4: Send LS to RAN2 to confirm whether the followings are correct understanding of UE behaviour:*** **UE can report beam failure of the PSCell during PSCell activation.**
* **UE should fall back to RACH based activation if UE detected either BFD or RLF on the deactivated PSCell.**
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| [**R4-2308484**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2308484.zip) | OPPO | Big CR for R18 RRM enhancement- FR1+FR1 NR-DC |
| [**R4-2308819**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2308819.zip) | Ericsson | **Proposal 1: Tsearch is the time for AGC settling and PSS/SSS detection. For RACH-less activaiton If the target cell is known and TCI state is known Tsearch = 0 ms for both FR1 and FR2.** **For RACH-less activation if target cell become unknown, the RACH based activation requirement will be followed.****Proposal 2: If Beam failure has been declared or TCI become unknown during SCG activation procedure, the SCG failure procedure shall be followed.** |
| [**R4-2308820**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2308820.zip) | Ericsson | draft CR to 38.133 for rel-18 NRDC remaining issues |
| [**R4-2309122**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2309122.zip) | Nokia, Nokia Shanghai Bell | 1. If UE has not detected either beam failure or RLF on the deactivated PSCell, there is no need for additional measurements at PSCell activation.
2. A UE which has not detected either BFD or RLF on the deactivated PSCell, need no additional measurements at PSCell activation.
3. A UE which has detected either BFD or RLF on the deactivated PSCell is allowed additional measurements at PSCell activation.
4. No need to indicate the beam failure during SCG activation procedure.
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*The moderator can suggest a limited number of papers which could be presented.*

## Open issues summary

*Before f2f meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 1-1: SCG activation/deactivation requirements for FR1-FR1 NR-DC

*Sub-topic description*

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| *Open issues from last meeting:***Issue 1-1-5: Whether to indicate the beam failure during SCG activation procedure***Candidate options:** + Option 1 (Apple): UE report beam failure of the PSCell during PSCell activation (after receiving the SCG activation message)
	+ Option 2 (vivo): Deprioritize this issue due to a corner case when BFD happens during activation procedure
	+ Option 3 (Apple, OPPO, Ericsson): Ask RAN2 for clarifications

*Tentative agreement for 2nd round:* Need further check and come back in next meeting.**Issue 1-1-1: General aspects related to BFD and RLM***Candidate options:** Option 1:
	+ A UE which has not detected either BFD or RLF on the deactivated PSCell, need no additional measurements at PSCell activation.
	+ A UE which has detected either BFD or RLF on the deactivated PSCell is allowed additional measurements at PSCell activation.
* Option 2:
	+ If UE has detected either BFD or RLF on the deactivated PSCell for RACH-less SCG Activation, UE fall back to RACH based activation.
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#### **Issue 1-1-1: UE behaviour when UE detected either BFD or RLF on the deactivated PSCell for RACH-less SCG activation**

Proposals:

* Option 1(Apple, Xiaomi, OPPO): UE fall back to RACH based activation.
* Option 1a (Huawei):
	+ When RLF happens during SCG activation procedure, UE shall indicate SCG failure to NW, and the SCG activation is stopped.
	+ When BF happens during SCG activation procedure, UE will initiate RACH procedure.
* Option 2(Ericsson):
	+ UE will follow the SCG failure procedure if BFD or RLF declared before SCG activation RRC reconfiguration message.
	+ UE will follow RACH based activation if BF declared after SCG activation RRC reconfiguration message
	+ UE will follow SCG failure procedure if RLF declared after SCG activation RRC reconfiguration message
* Option 3(Nokia): UE is allowed additional search/measurements at PSCell activation.

 Recommended WF:

* Option 1 is recommended

#### **Issue 1-1-2：UE report on the beam failure if Beam failure has been declared or TCI become unknown during SCG activation procedure**

Proposals:

* Option 1(OPPO): UE can report beam failure of the PSCell during PSCell activation.
	+ Option 1a (Huawei): It is a corner case when beam failure happens the PSCell during PSCell activation, and whether to report beam failure can be up to UE implementations. Whether the SCG failure for BF is transmitted or not is not essential.
* Option 2(Apple): UE shall indicate network the beam failure as same as the beam failure indication of the PSCell to the network while the SCG is deactivated; or send LS to RAN2 for clarification if RAN4 cannot decide.
* Option 4(Nokia, Ericsson): No need to indicate the beam failure during SCG activation procedure.

Recommended WF

* Option 1 is recommended

#### **Issue 1-1-3: RRM requirements when UE detected either BFD or RLF on the deactivated PSCell for RACH-less SCG activation**

Proposals

* Option 1(xiaomi, Huawei, OPPO): No need to specify new requirements in the spec.
* Option 2(Ericsson, [Apple]): Clarify that the RACH based activation requirement will be followed.
* Option 3(Nokia): Additional measurement delay.

Recommended WF

* Option 1 is recommended

#### **Issue 1-1-4: LS to RAN2 about RACH-less SCG activation**

Proposals

* Option 1: Send LS to RAN2 for clarification on the case that BFD happens during SCG activation procedure
* Option 2: Send LS to RAN2 to confirm whether the followings are correct understanding of UE behaviour:
	+ 1) UE can report beam failure of the PSCell during SCG activation procedure if TCI becomes unknown or beam failure happans
	+ 2) UE should fall back to RACH based activation if UE detected either BFD or RLF on the deactivated PSCell.

Recommended WF:

* Discuss whether to send LS and the details of LS.