3GPP TSG-RAN WG2 Meeting #119 Electronic R2-220xxxx

Elbonia, 17 – 26 August 2022

**Agenda item: 6.2.2.1**

**Source: Nokia (Rapporteur)**

**Title: Offline 222 – MAC/PDCP corrections to DCCA**

**WID/SID: LTE\_NR\_DC\_enh2-Core - Release 17**

**Document for: Discussion and Decision**

# 1 Introduction

This document is the report of the following email discussion:

By Email [222] (3+3+2+1+1)

SCell activation/deactivation actions in MAC:

[R2-2207011](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207011.zip) MIscellaneous Corrections for SCG activation\_deactivation Samsung Electronics Co., Ltd draftCR Rel-17 38.321 17.1.0 LTE\_NR\_DC\_enh2-Core

[R2-2208465](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2208465.zip) Correction for activation/deactivation of SCells Xiaomi draftCR Rel-17 38.321 17.1.0 LTE\_NR\_DC\_enh2-Core

[R2-2208650](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2208650.zip) Correction on SCG deactivation Huawei, HiSilicon CR Rel-18 38.321 17.1.0 1396 - F NR\_mob\_enh2-Core

* Revised in R2-2208697

R2-2208697 Correction on SCG deactivation Huawei, HiSilicon CR Rel-17 38.321 17.1.0 1396 1 F LTE\_NR\_DC\_enh2-Core

Beam failure actions when in deactivated SCG:

[R2-2207966](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207966.zip) [E129] Stop/resume BFD at beam failure for deactivated SCG Ericsson discussion [R2-2205797](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2205797.zip)

[R2-2207852](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207852.zip) Correction of BFD procedure for deactivated PSCell Sharp discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2207853](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207853.zip) CR related to BFD mechanism for deactivated PSCell Sharp CR Rel-17 38.321 17.1.0 1355 - F LTE\_NR\_DC\_enh2-Core

BWP operation:

[R2-2207854](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207854.zip) Remaining issues for BWP operation in deactivated SCG Sharp discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2207855](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207855.zip) CR on 38.321 for Remaining issues for BWP handling in deactivated SCG Sharp CR Rel-17 38.321 17.1.0 1356 - F LTE\_NR\_DC\_enh2-Core

Activation of BFD/RLM in deactivated SCG:

[R2-2207541](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207541.zip) Clarification on BFD while PSCell is deactivated Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1322 - F LTE\_NR\_DC\_enh2-Core

MAC/PDCP modelling issues:

[R2-2207393](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207393.zip) Discussion on MAC and PDCP Aspects CATT discussion Rel-17 LTE\_NR\_DC\_enh2-Core

### 6.2.4 Temporary RS for SCell activation

Including essential corrections to of temporary RS for SCell activation..

By Email [222] (2)

[R2-2207542](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207542.zip) Corrections MAC regarding TRS activation Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1323 - F LTE\_NR\_DC\_enh2-Core

[R2-2207788](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207788.zip) Correction to TRS for fast SCell activation vivo CR Rel-17 38.321 17.1.0 1340 - F LTE\_NR\_DC\_enh2

Email discussions ([222])

* [AT119-e][222][DCCA] MAC/PDCP corrections to DCCA (Nokia)

      Scope: Discuss NR and LTE MAC/PDCP corrections for DCCA marked for this discussion.

Intended outcome: Report in in [R2-2208758](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2208758.zip). Merged CR (if needed) in [R2-2208759](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2208759.zip).

Deadline: Deadline 1 (report) / Deadline 2 (final CRs)

# 2 Contact Points

Respondents to the email discussion are kindly asked to fill in the following table.

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| Company | Name | Email Address |
| Nokia (Rapporteur) | Jarkko Koskela | jarkko.t.koskela@nokia.com |
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# 3 Discussion

[R2-2207011](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207011.zip) MIscellaneous Corrections for SCG activation\_deactivation Samsung Electronics Co., Ltd draftCR Rel-17 38.321 17.1.0 LTE\_NR\_DC\_enh2-Core

Reason for change for the paper:

*Issue 1:*

*In section 5.9, conditions for applying SCell deactivation procedures are*

* *a) if an SCell Activation/Deactivation MAC CE or an Enhanced SCell Activation/Deactivation MAC CE is received deactivating the SCell*

* *b) if the sCellDeactivationTimer associated with the activated SCell expires*

*The condition ‘if the SCG associated with the activated SCell is deactivated’ is missing.*

*Issue 2:*

*In section 5.12, reset operation are defined only for the case reset of the MAC entity is requested by upper layers. However, MAC itself may initate MAC reset (see section 5.29).*

*Issue 3:*

*Section 5.15.1 specifies that for active BWP, UE transmit on UL-SCH on the BWP; transmit on RACH on the BWP, if PRACH occasions are configured; monitor the PDCCH on the BWP; transmit PUCCH on the BWP, if configured; report CSI for the BWP; transmit SRS on the BWP, if configured;*

*On the other hand section 5.29 specifies that when SCG is deactivated, for PSCell, UE does not transmit on UL-SCH; does not transmit on RACH; monitor the PDCCH on the BWP; does not transmit PUCCH on the BWP; does not report CSI; does not transmit SRS. This is contradictory operation for active BWP of PSCell. Note that when SCG is deactivated BWP is not deactivated.*

Changes are as following:

*For issue 1 condition ‘if the SCG associated with the activated SCell is deactivated’ is added. For issue 2, it is clarified in section 5.12 that reset operation are also applied when reset is initiated by MAC itself upon SCG deactivation. For issue 3 calrified that for activated BWP of PSCell, UL-SCH/RACH/PDCCH/PUCCH/SRS/CSI report related operation are performed only if SCG is activated.*

Issue1 and Issue2 seems to be clarirications that seems useful. Issue3 seems to be not existing as the first condition in the 5.29 states that operation is only applicable for activated serving cell. Thus adding these conditions does not seem necessary.

Please note that also this paper consider Issue1 (revision not available):

[R2-2208650](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2208650.zip) Correction on SCG deactivation Huawei, HiSilicon CR Rel-18 38.321 17.1.0 1396 - F NR\_mob\_enh2-Core

* Revised in R2-2208697

R2-2208697 Correction on SCG deactivation Huawei, HiSilicon CR Rel-17 38.321 17.1.0 1396 1 F LTE\_NR\_DC\_enh2-Core

**Question 1**: Do you agree on Issue1 and solution provided (if you prefer Huawei or Samsung one please indicate)?

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| Answers to Question 1 | | |
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**Summary 1**: TBD.

**Proposal 1**: TBD.

**Question 2**: Do you agree on Issue2 and its solution?

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| Answers to Question 2 | | |
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**Summary 2**: TBD.

**Proposal 2**: TBD.

**Question 3**: Do you agree on Issue3 and its solution?

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**Summary 3**: TBD.

**Proposal 3**: TBD.

[R2-2208465](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2208465.zip) Correction for activation/deactivation of SCells Xiaomi draftCR Rel-17 38.321 17.1.0 LTE\_NR\_DC\_enh2-Core

Reason for change:

*According to the current MAC spec, upon configuration of a SCell, the SCell is activated if the parameter sCellState is set to activated. Otherwise the SCell is deactivated. While the SCG is deactivated, all SCG SCell(s) are in deactivated. However, when the SCG state is changed from ‘deactivated’ to ‘activated’, current MAC spec has not specified how to manage SCell(s) of the SCG. So the UE behaviour for SCells of SCG is unclear upon SCG activation*

Summary of change:

*Upon SCG activation, the SCell is deactivated unless the parameter sCellState is set to activated for the SCell by upper layers*

It seems for the rapporteur that this is already clear as all the scells of SCG are deactivated when SCG is deactivated as per 5.29. But there is nothing wrong with the change either.

**Question 4**: Do you agree that upon SCG activation unless *sCellState* is set to activated SCells of SCG are deactivated and corresponding CR change?

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**Summary 4**: TBD.

**Proposal 4**: TBD.

[R2-2207966](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207966.zip) [E129] Stop/resume BFD at beam failure for deactivated SCG Ericsson discussion [R2-2205797](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2205797.zip)

*However, our understanding of the RAN2#117e agreement to stop BFD at beam failure of deactivated SCG was to save UE power by stopping the beam failure indication from the physical layer, since otherwise the UE may still continuously monitor the DL beams. The text in the first yellow part (i.e., if beam failure of the PSCell has not been indicated to upper layers since the SCG was deactivated) seems to hint that the condition BFI\_COUNTER >= beamFailureInstanceMaxCount could be satisfied a couple of times during SCG deactivation, which may only happen if BFI is still received from the lower layer. This is counter-intuitive, since a smart UE implementation should stop monitoring DL beams to save energy and so beam failure instance indication from the lower layers should be stopped.*

*RAN2 can correct the error and mandate that the UE shall stop beam failure indication from the physical layer. At this late stage of Rel-17 correction, it may lead to further unnecessary discussions since companies could interpret the RAN2#117e agreement differently. A simplified approach is to add a note in section 5.17 of 38.321 to allow a smart UE implementation by stopping lower layer beam failure indication while BFI\_COUNTER >= beamFailureInstanceMaxCount for deactivated SCG. A text proposal is provided in Annex A1.*

1. *Add a note in TS 38.321 that* *the UE may stop lower layer beam failure indication while* *BFI\_COUNTER >= beamFailureInstanceMaxCount for deactivated SCG.*

[R2-2207852](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207852.zip) Correction of BFD procedure for deactivated PSCell Sharp discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2207853](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207853.zip) CR related to BFD mechanism for deactivated PSCell Sharp CR Rel-17 38.321 17.1.0 1355 - F LTE\_NR\_DC\_enh2-Core

Sharp has quite similar topic as the Ericsson papers but slightly different approach how to solve this possible issue.

***Observation 1. In current RRC spec, RRC indicates RAN2 should discuss how to capture the mechanism of BFD stop/resume.***

***Proposal 1. RAN2 should discuss whether the entity which RRC indicates to stop beam failure detection is MAC or PHY.***

***Observation 2. For stopping BFD, RAN1 spec should be changed.***

***Observation 3. if RRC does not indicate to MAC to stop BFD for PSCell, MAC will reset BFI\_COUNTER by expiration of beamFailureDetectionTimer. Then, UE may perform RACh-less activation upon receiving SCG activation command even if beam failure is declared while SCG is deactivated.***

***Proposal 2. RRC should indicate to “MAC” to stop/resume BFD for PSCell.***

***Proposal 3. If UE stops BFD as alt 1, R2-2207853 should be approved.***

***Observation 4. If UE stops BFD as alt 1, MAC should indicate to PHY to stop BFD and not stop its own BFD procedure.***

***Observation 5. Current spec is not align with RAN2 agreements.***

***Proposal 4. RRC should indicate to MAC to stop BFD when receives the indication indicating that beam failure is declared on PSCell.***

[R2-2207541](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207541.zip) Clarification on BFD while PSCell is deactivated Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1322 - F LTE\_NR\_DC\_enh2-Core

Proposes to *Add explanation in the section 5.17 that the BFD can be performed for PSCell while the SCG is activated or while the SCG is deactivated and bfd-and-RLM with value true is configured*

From rapporteur perspective there indeed seems to be a small issue of UE possibly continuing BFD and there seems to be various ways to solve this

**Question 5**: Do you agree upon issue/unclariyy of continuing BFD even if it should not, and if you agree any preference how to solve it?

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**Summary 5**: TBD.

**Proposal 5**: TBD.

BWP operation:

[R2-2207854](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207854.zip) Remaining issues for BWP operation in deactivated SCG Sharp discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2207855](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_119-e\R2-2207855.zip) CR on 38.321 for Remaining issues for BWP handling in deactivated SCG Sharp CR Rel-17 38.321 17.1.0 1356 - F LTE\_NR\_DC\_enh2-Core

Reason for change:

*According to the latest MAC spec, upon the reception of RRC (re-)configuration signalling with firstActiveDownlinkBWP-Id for PSCell when SCG is deactivated, UE switches the DL BWP to the firstActiveDownlinkBWP-Id. If this DL BWP is not an active BWP, the UE will not assess radio link quality according to the current PHY spec. In this case, the physical layer in the UE might not provide an indication for RLM/BFD to higher layers regardless of higher layer configuration of RLM/BFD, and the UE might not perform RLM/BFD on the DL BWP correctly.*

Change:

*Modify the definition of BWP switching “The BWP switching for a Serving Cell is used to activate an inactive BWP and deactivate an active BWP at a time.”.*

Rapporteur thinks that Sharp considers that there is some problem about BWP handling and switching BWP to correct one. Unfortunately it was not clear what is the issue

**Question 6**: Do you see issue in handling BWP switching upon SCG deactivation and BFD handling? And if you do how do you prefer to solve it?

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**Summary 6**: TBD.

**Proposal 6**: TBD.

# 4 Temporary RS for SCell activation

By Email [222] (2)

[R2-2207542](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207542.zip) Corrections MAC regarding TRS activation Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1323 - F LTE\_NR\_DC\_enh2-Core

Reason for change:

1. *Section 5.9: UE does not select TRS for the cell but the TRS is indicated in the Enhanced SCell Activation/Deactivation MAC CE.*
2. *Section 6.1.3.55: Enhanced SCell Activation/Deactivation MAC CE can have zero, one or more TRS fields, ie., not always “several”.*
3. *Section 6.1.3.55: TRS fields encoding after the Ci field is ambiguous*

And changes:

1. *Section 5.9: Clarify the TRS is indicated in the Enhanced SCell Activation/Deactivation MAC CE.*
2. *Section 6.1.3.55: replace “several” by “zero, one, or more”.*
3. *Section 6.1.3.55: Clarify the TRS fields are placed in ascending order based on the ScellIndex for SCells indicated by the Ci field(s) to be activated in the MAC CE.*

[R2-2207788](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207788.zip) Correction to TRS for fast SCell activation vivo CR Rel-17 38.321 17.1.0 1340 - F LTE\_NR\_DC\_enh2

*Adds missing clause to RRC*

**Question 7**: Do you agree on proposed corrections/clarifications regarding temporary RS fro SCell Activation? If not please indicate which one(s).

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| Answers to Question 7 | | |
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**Summary 7**: TBD.

**Proposal 7**: TBD.

# 5 Conclusion

TBD.