**3GPP TSG-RAN WG2 Meeting #116is electronic R2-2xxxxxx**

**Online Meeting, Jan 17th – 25th 2022**

**Agenda item: 8.2.2.3**

**Source: Apple Inc**

**Title: Report of [AT116bis-e][223][DCCA] MCG failure recovery (Apple)**

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

**Document for: Discussion and Agreement**

1 Introduction

This document is for summary of the following discussions:

* [AT116bis-e][223][DCCA] MCG failure recovery (Apple)

 Scope: Discuss whether it's possible to support MCG failure recovery via deactivated SCG (based on contributions to this meeting).

        Intended outcome: Discussion summary in R2-2201703.

        Deadline: Deadline 3

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

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| Company | Contact: Name (E-mail) |
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2 MCG Failure recovery in deactivated SCG

2.1 Any objections?

All the papers submitted by the companies to RAN2-116bis-e meeting have proposal on ways to support MCG link recovery using the deactivated SCG, and the rapporteur do not see papers objecting to support this. However, the rapporteur would like to see if there are companies actually intending to object to this with the below question.

**Question 1: Companies are requested to list below, if they intend to object the MCG failure recovery using deactivated SCG procedure.**

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| **Company** | **Reason for objection** |
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**Summary:**

**TBD**

2.2 Approaches to solving MCG failure recovery in deactivated SCG

### 2.2.1 Self activation of SN by the UE

The basic approach to allowing the UE report the MCG failure information to the MN using the deactivated SCG is with one of the below options. Note that some companies have provided views for the top two approaches below.

* UE activated the SCG by itself (proponents of this approach claim that the main reason is that the UE needs to monitor PDCCH on the PSCell as part of this procedure). There are details on the UE specifics after UE activated the SCG by itself [3][8][10][11]
* UE does not activate the SCG by itself and waits for a RRC message from the NW to activate, but this raised the question of UE monitoring the PDCCH (atleast for RAR if RACH is triggered for eg) [4][5]
* UE uses UAI based approach [2]

The rapporteur thinks that this is one of the main discussion points to resolve with designing this.

**Question 2: For the MCG failure recovery with deactivated SCG, which option do you prefer?**

* **Option 1 The UE activates the SCG by itself**
* **Option 2 The UE informs the SN of the MCG failure information, but only activates the SCG if the NW provides a configuration (message) activating the SCG**
* **Option 3 The UE uses the UAI message to the MN to request for SN activation. This message has information for the reason for the request of SN activation: UL data arrival, MCG failure recovery etc.**

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| **Company** | **Which option** | **Reasons/comments on your views**  |
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**Summary:**

**TBD**

### 2.2.2 Only RACH based or SR

Companies in [3][4][5][1][9][11] propose that the UE trigger SR (if valid) and use RACH in case SR is not available or TAT expired earlier. We already agreed that there would NOT be any data to be transmitted on the DRBs during SCG deactivated state, but SRB might need to be transmitted. It would be good to confirm if SR is valid for the UE at SCG deactivated state.

**Question 3: If configured for SCG in SCG activated state, is the SR configuration valid to the UE while the SCG is deactivated, to be used for the purpose of transferring the SRB?**

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| **Company** | **Yes/No** | **Additional comments**  |
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**Summary:**

**TBD**

### 2.2.3 Validity of the SR

**Question 4: If the answer to Q3 is yes, would you agree that the SR resource would not be considered valid, if the TAT expires in SCG deactivated state (similar to legacy operation)?**

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| **Company** | **Yes/No** | **Additional comments**  |
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**Summary:**

**TBD**

### 2.2.4 Dedicated configuration to the UE at SCG deactivation

Companies in [11][3] propose that the UE can be use the dedicated configuration provided to it for the purpose of faster MCG failure recovery. Rapporteur thinks an explicit agreement related to this also can help with progressing this procedure.

**Question 5 Can the NW be allowed to provide the UE with a dedicated configuration at the time of SCG deactivation, to be used during the SCG deactivated state (for eg., with the purpose that the UE can use this for informing the SCG about MCG failure information)?**

* **The dedicated configuration includes dedicated RACH resources or SR configuration**
* **Any other config?**

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| **Company** | **Yes/No** | **Additional comments**  |
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**Summary:**

**TBD**

### 2.2.5 PDCCH monitoring after SR

There is one open item in case the UE does NOT activate the SCG after triggering SR (in case RAN2 agrees to this approach). The rapporteur thinks it’s worth raising this to see where RAN2 stands.

**Question 6: In case the UE does NOT activate the SCG by itself, but is allowed to trigger SR for the SRB (for MCG failure information), should the UE monitor PDCCH on the PSCell?**

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| **Company** | **Yes/No** | **Additional comments**  |
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**Summary:**

**TBD**

2.3 T316 and other aspects

Companies in [3][11][1][2] propose that the legacy timer T-316 might need to be re-visited for MCG failure recovery while the SCG is deactivated (due to for eg., increased time needed for MN-SN co-ordination etc).

Rapporteur likes to collect feedback on this aspect for making progress.

**Question 7: Companies are requested to provide views on the below:**

**7.1 – A new timer similar to T-316 is needed for MCG failure recovery in SCG deactivated state.**

**7.2 – The existing T-316 needs to be extended.**

**7.3 – The current 2000ms should be enough and the NW can choose the needed configuration**

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| **Company** | **Which among 7.1,7.2,7.3?** | **Additional comments**  |
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**Summary:**

**TBD**

2.4 Comments on the TPs

Companies in [1][5][9][10][11] have provided TPs for their intended way of implementing this feature. While the content might need changes based on the RAN2 progress, it is worth collecting input on the company views on the TPs in parallel.

**Question 8: Companies are requested to provide views on the below:**

**8.1 – Any comments on the TP from [1].**

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| **Company** | **Additional comments**  |
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**Summary:**

**TBD**

**8.2 – Any comments on the TP from [5].**

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| **Company** | **Additional comments**  |
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**Summary:**

**TBD**

**8.3 – Any comments on the TP from [9].**

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| **Company** | **Additional comments**  |
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**Summary:**

**TBD**

**8.4 – Any comments on the TP from [10].**

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| **Company** | **Additional comments**  |
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**Summary:**

**TBD**

**8.5 – Any comments on the TP from [11].**

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**Summary:**

**TBD**

4 Conclusion

TBD

5 References

[1] R2-2200388 Fast MCG recovery based on SCG deactivation OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[2] R2-2200896 Considerations for Fast MCG link recovery with deactivated SCG CMCC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[3] R2-2201073 Other aspects of SCG activation/deactivation Qualcomm Incorporated discussion Rel-17

[4] R2-2201115 Simple MCG recovery procedure using deactivated SCG for Rel-17 Apple discussion LTE\_NR\_DC\_enh2-Core R2-2110092

[5] R2-2201116 CR TP for MCG recovery procedure using deactivated SCG for Rel-17 Apple discussion LTE\_NR\_DC\_enh2-Core

[6] R2-2201295 Further discussion on TCI State indication in RRC MediaTek Inc. discussion R2-2111192

[7] R2-2201317 Deactivation of SCG LG Electronics Finland discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[8] R2-2201333 Discussion on SCG (de)activation NTT DOCOMO, INC. discussion Rel-17

[9] R2-2201394 Fast MCG recovery via deactivated SCG vivo discussion LTE\_NR\_DC\_enh2-Core

[10] R2-2201432 Fast MCG link recovery via deactevated SCG Sharp discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[11] R2-2201575 Rest issues of SCG Activation LG Electronics discussion Rel-17 LTE\_NR\_DC\_enh2-Core R2-2111018