3GPP TSG-RAN WG2 #110-e R2-20xxxxx

Electronic Meeting, 1st – 12th June 2020

Agenda Item: 6.10.5

Source: Ericsson

Title: [AT110e][073][DCCA] Stage-2 Updates

Document for: Discussion, Decision

# 1 Introduction

This document is to kick off the following email discussion:

* [AT110e][073][DCCA] Stage-2 Updates (vivo, Ericsson)

Scope: Treat documents under 6.10.5, determine agreeable parts and and make agreements. Implement meeting agreements in updated CRs.

 Agreed CRs 36300 38300 (Ericsson) 37340 (vivo)

 Deadline: June 11 0700 UTC

# 2 Discussion

Companies are requested to add their comments for each of the treated CRs of this email discussion in the boxes below (one for each CR to be treated).

## 2.1 Clarification of DAPS configuration in MR-DC

[R2-2005169](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005169.zip) Clarification of DAPS configuration in MR-DC Ericsson CR Rel-16 38.300 16.1.0 0236 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2005170](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005170.zip) Clarification of DAPS configuration in MR-DC Ericsson CR Rel-16 37.340 16.1.0 0201 - F LTE\_NR\_DC\_CA\_enh-Core

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| Company | Comments |
| Qualcomm | It seems to be fine. But we are wondering whether it is better to discuss these 2 CRs in mobility WI because we understand the intention of the change is to capture DAPS agreements made in mobility WI.  |
| CATT | The CRs seem OK. Agree with Qualcomm it belongs to mobility WI. |
| Nokia | Not OK - The CR is not very clear. We should clarify that: it is possible to configure DAPS to the UE with MR-DC, but SCells need to be released.Or alternatively these should be discussed in mobility WI. |
| LG | We seem that these CRs are not needed. According to R2-2004518 (38.300) which was discussed in mobility WI, a note is added in the mobility section. *“NOTE 3: Only PCell is kept during DAPS handover and all SCells are released by the network”.*Hence, it is already clear that DAPS handover cannot be configured in the case of MR-DC. |
| OPPO | 1. The sentence is correct. However, both MR-DC and CA will not be configured in DAPS HO, but here it only mentions the MR-DC case. So the note in 38.300 is enough.

*“NOTE 3: Only PCell is kept during DAPS handover and all SCells are released by the network”.* |
| Ericsson | After checking the stage 2 specifications, we noticed that is not clear whether DAPS handover can be configured or not in case of MR-DC and CA. Our understanding it that is not possible and we want to make it clear. If current text is not clear enough, we would be happy to rephrase it based on companies feedback. |
| Huawei | We agree the sentence proposed is right, as in mobility WI it was agreed that DAPS+DC is not supported. For CR to 38300, we also share the same view with Qualcomm and CATT that this should be discussed in mobility WI, especially if there has been already same discussion as LG pointed out, we should not discuss and capture same thing again. For CR to 37340, considering the terminology of DAPS is not present in this spec, so the clarification is not needed. |
| MediaTek | We think the intention of the CRs are correct. I agree that this may be better to be discussed in mobility section.  |
| Lenovo | This should be discussed in Mobility topic. And, it has been discussed in Mobility topic (agreed in [R2-2004518](file:///D%3A%5C3GPP%5CRAN2%5CTSGR2_110e%5CDocs%5CR2-2004518.zip)) |
| Ericsson2 | According to R2-2004518, if this is agreed, we are also fine to not have any clarification on the TS 38.300. However, for what concern the TS 37.340, the note added in the mobility WI it does not really cover the DC aspects (that is not covered, in general, in TS 38.300, but only in TS 37.340) but rather the CA aspects. Therefore, we would still prefer to have a clarification there for the DC case. In fact, if we have a scenario where we have PCell and SCells on the MCG but only PSCell on the SCG, note added in 38.300 it gives the impression that the SCG is kept. However, the problem is that DAPS should not have been configured at all if DC was there. |
| Nokia2 | This should be discussed in Mobility session. Nevertheless, we think according to R2-2004518, the note could be updated as:’NOTE 3: Only PCell is kept during DAPS handover; All other serving cells ~~all SCells~~ are released by the network”. |
| ZTE | In general I also think we should clarify that SCell(s) should be released during DAPS HO, rather than clarifying that DAPS with DC is not supported. In any case it's fine to have a corresponding note in TS37.340 as well. |

## 2.2 Support of inter-RAT handover

[R2-2005640](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005640.zip) 37.340 CR for Supporting inter-RAT handover during fast MCG link recovery LG Electronics Inc. CR Rel-16 37.340 16.1.0 0206 - F LTE\_NR\_DC\_CA\_enh-Core

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| Company | Comments |
| Qualcomm | The intention of the CR is fine, but we think the case of *MobilityFromEUTRACommand* message is missing. Thus, we suggest below change in section 7.7:=============================it does not receive an *RRC reconfiguration* message, *MobilityFromNRCommand* message, or *MobilityFromEUTRACommand* message or *RRC release* message within a certain time after fast MCG link recovery was initiated.Upon reception of the MCG Failure Indication, the MN can send *RRC reconfiguration* message, *MobilityFromNRCommand* message, or *MobilityFromEUTRACommand* message or *RRC release* message to the UE, using the SCG leg of split SRB1 or SRB3. Upon receiving an *RRC reconfiguration* message or *MobilityFromNRCommand* message, or *MobilityFromEUTRACommand* message, the UE resumes MCG transmissions for all radio bearers. Upon receiving an *RRC release* message, the UE releases all the radio bearers and configurations.======================= |
| CATT | The MobilityFromEUTRACommand should be added, for (NG)EN-DC case. The MobilityFromEUTRACommand may be used as the response to the MCG failure information. |
| Nokia | Agree with QC’s comments (with the following updates below). Related to QC’s addition: “Upon receiving an *RRC reconfiguration* message or *MobilityFromNRCommand* message, or *MobilityFromEUTRACommand* message, the UE resumes MCG transmissions for all radio bearers. Upon receiving an *RRC release* message, the UE releases all the radio bearers and configurations “ 🡪 We wonder if addition of the “MobilityFrom…” both messages in this sentence is correct since probably none of the UE’s radio bearers will survive inter-RAT mobility, so UE’s transmissions on them cannot resume either. We think these may need to be removed.Additionally, similar addition of MobilityFromEUTRACommand message in section 7.5:… an encapsulated RRC reconfigurationmessage, *MobilityFromNRCommand* message, *MobilityFromEUTRACommand* message, or RRC release message in the *DLInformationTransferMRDC* message. |
| LG | We are also fine with the QC’s comment which includes *MobilityFromEUTRACommand* message in section 7.7. Same addition can be applied in section 7.5 considering EN-DC case.If split SRB1 is not configured, SRB3 may be used by the UE to transmit to the MN an encapsulated *MCG Failure Information* message in the *ULInformationTransferMRDC* message and receive in response an encapsulated *RRC reconfiguration* message, *MobilityFromNRCommand* message or *MobilityFromEUTRACommand* message or *RRC release* message in the *DLInformationTransferMRDC* message. |
| OPPO | Agree with QC’ comments.For Nokia’s concern, I wonder what is that mean for the “suspend all the radio bearers...” and “resume all the radio bearers…”.For my understanding:1. If SRB3 is used for MCG failure recovery, the MCG should resume SRB1’s RRC to decode the MCG RRC PDU from SCG;
2. If split SRB1 is used for the MCG failure recovery, the MCG should resume the SRB1’s PDCP and RRC to decode the PDCP PDU.

After the decoding, then the MN can know the RRC message which it is. So the MN will resume SRB after reception of RRC PDU or PDCP PDU, then MN know which RRC message it is.So no matter which RRC message received, the MN should resume SRB1 first, even if the RRC release message is target message. |
| Ericsson | Agree with QC’s comment. |
| Huawei  | We agree that *MobilityFromEUTRACommand* case should be added to both 7.5 and 7.7.And we also tent to agree Nokia’s comments that the behavior of “resume MCG transmission” for inter-RAT HO seems not correct, because after inter-RAT HO the transmission of MCG was not suspended. What was suspended is the transmission in the source RAT.So we propose the following change:“Upon reception of the MCG Failure Indication, the MN can send *RRC reconfiguration* message, *RRC release* message, *MobilityFromNRCommand* message or *MobilityFromEUTRACommand* to the UE, using the SCG leg of split SRB1 or SRB3. Upon receiving an *RRC reconfiguration* message, the UE resumes MCG transmissions for all radio bearers. Upon receiving an *RRC release* message, the UE releases all the radio bearers and configurations. Upon receiving an *MobilityFromNRCommand* message or *MobilityFromEUTRACommand* message, the UE execute inter-RAT HO.” |
| MediaTek | The CR looks OK and we also agree the suggestion from QC. |
| Lenovo | We are fine with the CR.I have a suggestion as follow. According to the T316 in 7.1.1 of 38.331, UE stops T316 when receiving *RRC reconfiguration* message with *reconfigurationwithSync* for the PCell. That means UE does not stop T316 when receiving *RRC reconfiguration* message without *reconfigurationwithSync.*37.340:The UE initiates the RRC connection re-establishment procedure if it does not receive an *RRC reconfiguration* message with *reconfigurationwithSync* for the PCell, *MobilityFromNRCommand* message or *RRC release* message within a certain time after fast MCG link recovery was initiated. |
| ZTE | Agree with QC and LG’s comments, both 7.7 and 7.5 can be updated. Regarding Lenovo’s comment, we understand for MCG link recovery, when network sends RRC reconfiguration message, it must include the *reconfigurationWithSync* field, thus additional change seems not needed.  |

## 2.3 Support of asynchronous NR-DC

[R2-2006014](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2006014.zip) Support of asynchronous NR-DC ZTE Corporation (Rapporteur) CR Rel-16 37.340 16.1.0 0207 - B LTE\_NR\_DC\_CA\_enh-Core

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| Company | Comments |
| Qualcomm  | We agree with the intention of the CR. However, we suggest to use bullets to make different synchronization cases more clearly. For example:*Depending on UE's capabilities, NR-DC may require below synchronization between PCell and PSCell:* 1. *slot-level with SFN synchronization*
2. *slot-level without SFN synchronization*
3. *neither slot-level nor SFN synchronization*
 |
| CATT | We agree with the CR. |
| Nokia | We do not agree with QC’s proposal: In RAN#81, was agreed that: In alignment with the previous agreements, ask RAN1 and RAN4 to explicitly include restriction to synchronous mode NR-NR DC in the Rel-15 specifications (RP-181708). RAN endorsed the proposal and reconfirmed restriction to synchronous case for REL-15.Therefore:We think that 1) is not needed, so having one level for sync case should be enough. Additionally, RAN4 defines just what is the time difference requirement between slot boundaries, so option 2) should be enough. Therefore, we think: 2) & 3) are enough, i.e. “slot-level without SFN synchronization” and “neither slot-level nor SFN synchronization”.Based on this, the CR text could be updated as:“Depending on UE's capabilities, NR-DC may require slot-level synchronization between PCell and PSCell, ~~with or~~ without SFN synchronization between PCell and PSCell, or no synchronization at all. “  |
| LG | We agree with CR. |
| OPPO | We agree with CR.But do not understand Nokia’ concern. |
| Ericsson | ZTE CR looks ok for us. |
| Huawei | We share the same view as Nokia. We understand in RP #85, it was agreed the UE capability *sfn-SyncNRDC*, indicating that the UE supports NR-DC only with SFN synchronization between PCell and PSCell, is only applicable for R15. Therefore the sync NR-DC in R16 does only require SFN alignment, and async NR-DC requires neither slot alignment nor SFN alignment. We should make it clear on above aspects. So we propose the following change on top of ZTE’s CR:Depending on UE capabilities, NR-DC may require slot-level synchronization between PCell and PSCell, without SFN synchronization between PCell and PSCell, or no synchronization at all.  |
| MediaTek | Agree |
| Lenovo | We are fine with this CR. |
| ZTE | We are fine with the CR (of course).Regarding the comment from Nokia and Huawei, i.e. the proposal to disallow Rel-16 UEs to signal the "incapability bit" (indicating that SFN synchronization is required), even if in principle we could have some sympathy for this, this is something which is not up for RAN2 to decide. This issue was also raised in the RAN plenary when the incapability bit was suggested and introduced in the specs. At that time the RAN plenary decided to come back at a later point in time to see whether the use of the "incapability bit" could be disallowed from a given version of the specs. So, if companies really want this, they might bring this discussion to the RAN plenary. In any case we cannot prevent a Rel-16 network to continue to offer NR-DC to Rel-15 UEs requiring SFN synchronization, so the Rel-16 specification still needs to foresee the case where NR-DC uses SFN synchronization.In conclusion I guess that for now we can only agree a 37.340 CR saying that all options as possible.  |

## 2.4 Agreements on fast MCG recovery

[R2-2004502](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2004502.zip) Capture latest agreements on fast MCG recovery vivo CR Rel-16 37.340 16.1.0 0200 - B LTE\_NR\_DC\_CA\_enh-Core

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| Company | Comments |
| Qualcomm | We agree with CR |
| CATT | The note2 will preclude the case of inter-RAT handover via SRB1 which was agreed* RAN2 assumes it is feasible to support inter-RAT HO during fast MCG recovery.

So the note2 should delete the “apart from inter-RAT handover”NOTE2: ~~Apart from inter-RAT HO,~~ all handover scenarios according to Table B-1 that have a DC option in the column “from” are supported during fast MCG failure recovery. |
| Nokia | Agree with Note1 section 7.7., but with clarifications from Section 2.2 (above in this email discussion) included.Related to Note2 - Table B-1: Supported MR-DC handover scenarios, maybe we could clarify a bit as:NOTE2: ~~Apart from inter-RAT HO~~, ~~a~~ All intra-RAT handover scenarios according to Table B-1 that have a DC option in the column “from” are supported during fast MCG failure recovery.Note 3 – OK. |
| LG | We agree with CR. |
| OPPO | We agree with CR. |
| Ericsson | We are one oft he proponent company so we agree with the CR. Ok also to change the wording according to Nokia or CATT suggestion. |
| Huawei | For NOTE2, agree with CATT that “apart from inter-RAT handover” should be deleted.For NOTE3, we think this note seems not needed, if the intention is only to indicate some cases not supported due to no SRB3 for NE-DC which would be quite obvious. |
| MediaTek | We think change on Annex B is not necessary. It is anyway an informative text and it is clear in the RRC SPEC that inter-RAT handover is supported during fast recovery. We are afraid that there would be more scenarios in the further and we have listed every case that is supported. The other changes looks fine. |
| Lenovo | We are fine with this CR and comments from CATT. In addition, ‘fast MCG failure recovery’ in note2 should be changed to ‘fast MCG link recovery’ in order to align with other sections e.g. section7.7 |
| ZTE | Agree with CATT’s comments on Note2.For Note 3, we share the same view with Huawei. All possible cases are already covered by Note2. Note 3 by excluding NE-DC which has no SRB3 does not bring much value.  |

# Conclusion

In the previous sections we made the following observations:

Based on the discussion in the previous sections we propose the following:

# References

[1]