**3GPP TSG RAN WG2 Meeting #118-e R2-220xxxx
E-Conference, 9th – 20th May 2022**

**Agenda item: 6.2.1**

**Source: ZTE Corporation**

**Title: Report of [AT118-e][221][DCCA] Stage-2 CRs for DCCA enhancements (ZTE)**

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

**Document for: Discussion and Decision**

# 1 Introduction

This document is to handle the following email discussion:

* [AT118-e][221][DCCA] Stage-2 CRs for DCCA enhancements (ZTE)

      Scope: Discuss 37.340 corrections for R17 DCCA with [R2-2204546](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2204546.zip) as starting point. Also include any Stage-2 corrections based on online decisions.

 Intended outcome: Agreeable CR in [R2-2206164](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2206164.zip).

 Deadline: Deadline 5

The following documents are to be treated in this email discussion:

By Email [221] (1)

Rapporteur CR to 37.340:

[R2-2204546](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2204546.zip) Corrections on TS 37.340 for DCCA enhancements ZTE Corporation, Sanechips, CATT CR Rel-17 37.340 17.0.0 0310 - F LTE\_NR\_DC\_enh2-Core

(moved from 6.2.3)

By Email [221] (3)

Stage-2 corrections, 37.340 on SCG (de)activation:

[R2-2205245](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2205245.zip) 37.340 corrections regarding deactivated SCG Nokia, Nokia Shanghai Bell CR Rel-17 37.340 17.0.0 0314 - F LTE\_NR\_DC\_enh2-Core

[R2-2205367](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2205367.zip) Corrections on eDCCA vivo CR Rel-17 37.340 17.0.0 0316 - F LTE\_NR\_DC\_enh2-Core

(moved from 6.2.2)

[R2-2205926](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2205926.zip) Corrections for SCG (de)activation Huawei, HiSilicon draftCR Rel-17 37.340 17.0.0 F LTE\_NR\_DC\_enh2-Core

R2-2205259 Network behaviour at/while SCG deactivation Fujitsu discussion Rel-17 LTE\_NR\_DC\_enh2-Core

By Email [221] (4)

Stage-2 corrections to 37.340 on CPAC:

[R2-2204957](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2204957.zip) Miscellaneous corrections to 37.340 CPAC Lenovo discussion Rel-17

[R2-2204802](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2204802.zip) Correction on full configuration in TS 37.340 vivo CR Rel-17 37.340 17.0.0 0312 - F LTE\_NR\_DC\_enh2-Core

[R2-2205446](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2205446.zip) Correction CR for MR-DC Ericsson CR Rel-17 37.340 17.0.0 0320 - F LTE\_NR\_DC\_enh2-Core

[R2-2205927](file:///C%3A%5CUsers%5Cterhentt%5CDocuments%5CTdocs%5CRAN2%5CRAN2_118-e%5CR2-2205927.zip) Corrections for CPAC Huawei, HiSilicon draftCR Rel-17 37.340 17.0.0 F LTE\_NR\_DC\_enh2-Core

[R2-2205527](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205527.zip) Rel-17 CPAC corrections to 37.340 Nokia, Nokia Shanghai Bell CR Rel-17 37.340 17.0.0 0319 - F LTE\_NR\_DC\_enh2-Core

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

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| --- | --- |
| Company | Contact: Name (E-mail) |
| Nokia | Jedrzej Stanczak |
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# 2 SCG activation/deactivation

The updated CR can be found in “draft\_R2-2206164 Corrections on TS 37.340 for DCCA enhancement” [11]. It merged some changes proposed in [2][4], other changes proposed by companies are discussed in following sections.

## 2.1 Corrections in R2-2204546 [1]

In [1], there are two changes related to SCG activation/deactivation, Change#1 is also proposed in [8].

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| **Change#1**: Considering “MCG link recovery while the SCG is deactivated” and “UE-initiated SCG activation via SCG” are not supported in Rel-17, there is no motivation to configure dedicated RACH resource prior to SCG activation, so the Editor’s Note in section 6.1 can be removed.**Change#2**: 2. SCG (de)activation is not applicable to NE-DC scenario, but this is not captured in current spec. So the term “MR-DC” is changed into “(NG)EN-DC or NR-DC” in section 7.13.To enable reasonable UE battery consumption while having fast usage of SCG when (NG)EN-DC or NR-DC is configured, an activation/deactivation mechanism of SCG is supported. While the SCG is deactivated, there is no transmission via SCG RLC bearers. Only the NR SCG can be deactivated, and all SCG SCell(s) are in deactivated state while the SCG is deactivated. |

**Question 2.1: Do you agree with the changes proposed in [1]?**

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| Company | Yes/No | Comments if any |
| Nokia | Yes |  |
| LGE | Yes |  |
| Ericsson | Yes |  |
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## 2.2 Corrections in R2-2205245 [2]

In [2], the following changes are proposed:

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| **Change#1**: UE assistance information regarding SCG deactivation preference added to 7.10.In MR-DC, the UE can be configured to report MCG specific UE assistance information if the MN is a gNB and/or SCG specific UE assistance information if the SN is a gNB, if it prefers an adjustment on the connected mode DRX parameters, the maximum aggregated bandwidth, the maximum number of secondary component carriers, the maximum number of MIMO layers, SCG deactivation, and/or the minimum scheduling offset for cross-slot scheduling cycle length for power saving. In these cases, it is up to the network whether to accommodate the preference. SCG specific UE assistance information for power saving can be configured by the network via SRB1 or SRB3. SCG specific UE assistance information for power saving is directly transmitted to the SN via SRB3, if SRB3 is configured, otherwise UE transmits SCG specific UE assistance information for power saving in a transparent container to the MN. UE can implicitly indicate a preference for NR SCG release by indicating zero number of carriers and zero aggregated maximum bandwidth in both FR1 and FR2.**Change#2**: In 10.2.1/10.2.2 it seems that wording is such that SCG is allowed to not activate SCG if requested by MN as the wording “If the MN requests the SCG to be activated, the SN shall keep the SCG activated.” seems to allow SCG to “keep” activation status of SCG. This is misleading. So change wording in 10.2.1/10.2.2 to ensure it is common understanding that by MN request SN activates SCG.2. If the RRM entity in the SN is able to admit the resource request, it allocates respective radio resources and, dependent on the bearer option, respective transport network resources. For bearers requiring SCG radio resources, the SN triggers Random Access so that synchronisation of the SN radio resource configuration can be performed. The SN decides the PSCell and other SCG SCells and provides the new SCG radio resource configuration to the MN in a *NR RRC configuration* message contained in the *SgNB Addition Request Acknowledge* message. In case of bearer options that require X2-U resources between the MN and the SN, the SN provides X2-U TNL address information for the respective E-RAB, X2-U UL TNL address information for SN terminated bearers, X2-U DL TNL address information for MN terminated bearers. For SN terminated bearers, the SN provides the S1-U DL TNL address information for the respective E-RAB and security algorithm. If SCG radio resources have been requested, the SCG radio resource configuration is provided. If the MN requested the SCG to be deactivated, the SN may keep the SCG activated. If the MN requests the SCG to be activated, the SN shall keep the SCG activated or activate the SCG if it was deactivated.Rapp’s note: similar sentence “or activate the SCG if it was deactivated” is added to multiple places in 10.2.1 and 10.2.2.**Change#3**: 10.3.1 it seems it is optional for SN to indicate SCG activation status. This is misleading. So changed wording in 10.3.1 to ensure SCG activation status is indicated to MN.2. The SN responds with the *SgNB Modification Request Acknowledge* message, which may contain SCG radio resource configuration information within a NR RRC configuration message and data forwarding address information (if applicable). If the MN requested the SCG to be activated or deactivated, the SN indicates whether the SCG is activated or deactivated. In case of a security key update (with or without PSCell change), for E-RABs configured with the MN terminated bearer option that require X2-U resources between the MN and the SN, for which no bearer type change is performed, the SN provides a new DL GTP tunnel endpoint to the MN. The MN shall continue sending DL PDCP PDUs to the SN with the previous DL GTP tunnel endpoint until it performs PDCP re-establishment or PDCP data recovery, and use the new DL GTP tunnel endpoint starting with the PDCP re-establishment or data recovery. In case of a security key update (with or without PSCell change), for E-RABs configured with the SN terminated bearer option that require X2-U resources between the MN and the SN, for which no bearer type change is performed, the SN provides a new UL GTP tunnel endpoint to the MN. The MN shall continue sending UL PDCP PDUs to the SN with the previous UL GTP tunnel endpoint until it re-establishes the RLC and use the new UL GTP tunnel endpoint after re-establishment. |

**Rapporteur comments:**

1. For **Change#1,** agree with the change.

2. For **Change#2**, these are SN/SgNB addition procedures, there is no previous configured SCG (SN change is described in other sections), so the original wording is correct.

3. For **Change#3**, the change is reasonable. (Note: already implemented in the updated CR)

**Question 2.2: Do you agree with the changes proposed in [2]?**

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| Company | Yes/No | Comments if any |
| Nokia | Yes(proponent) | Rapporteur suggestions look fine to us |
| LGE | See comments | We agree with Change#2 and Change#3. However, for Change#1, we prefer Change#4 in [3].  |
| Ericsson | Yes |  |
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## 2.3 Corrections in R2-2205367 [3]

In [3], except for some editorial corrections, the following changes are proposed:

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| **Change#1**: 1. In 7.6, it is stated “For the split SRB, the selection of transmission path in downlink depends on network implementation.”, however, this is not reasonable when the SCG is deactivated.For the split SRB while the SCG is activated, the selection of transmission path in downlink depends on network implementation. For uplink, the UE is configured via MN RRC signalling whether to use MCG path or duplicate the transmission on both MCG and SCG.**Change#2**: According to the 38331, upon BF while the SCG is deactivated, the UE initiates SCG failure information, in which the UE does not suspend SCG transmission for all SRBs and DRBs. However, the current description in 7.7 in 37.340 is not consistent with this.Upon SCG failure, if MCG transmissions of radio bearers are not suspended, the UE triggers SCG failure information and reports the *SCGFailureInformation* to the MN, instead of triggering re-establishment. If SCG failure information initiated is not due to beam failure of the PSCell while the SCG is deactivated, suspends SCG transmissions for all radio bearers. If SCG failure is detected while MCG transmissions for all radio bearers are suspended, the UE initiates the RRC connection re-establishment procedure.**Change#3**: In 7.13, it is stated “SCG deactivation can be requested by the MN and by the SN”, which is not correct. SCG deactivation can be requested by the UE.SCG activation can be requested by the MN, by the SN and by the UE. SCG deactivation can be requested by the MN, by the SN and by the UE.**Change#4**: UE requested SCG activation/deactivation mechanism is via UAI, so better to put the corresponding description in the section 7.10 UE assistant information..*Modification to section 7.10:*In MR-DC, the UE can be configured to report MCG specific UE assistance information if the MN is a gNB and/or SCG specific UE assistance information if the SN is a gNB, if it prefers an adjustment on the connected mode DRX parameters, the maximum aggregated bandwidth, the maximum number of secondary component carriers, the maximum number of MIMO layers, and/or the minimum scheduling offset for cross-slot scheduling cycle length for power saving. In these cases, it is up to the network whether to accommodate the preference. SCG specific UE assistance information for power saving can be configured by the network via SRB1 or SRB3. SCG specific UE assistance information for power saving is directly transmitted to the SN via SRB3, if SRB3 is configured, otherwise UE transmits SCG specific UE assistance information for power saving in a transparent container to the MN. UE can implicitly indicate a preference for NR SCG release by indicating zero number of carriers and zero aggregated maximum bandwidth in both FR1 and FR2. UE can provide its preference for SCG deactivation to the MN. Network can configure whether the UE is allowed to indicate a preference for SCG deactivation to the MN. For UL data arrival on SCG bearer(s) while the SCG is deactivated, the UE indicates to the MN that it has UL data to transmit over SCG bearer.*Modification to section 7.13:*SCG activation can be requested by the MN, by the SN and by the UE. SCG deactivation can be requested by the MN, by the SN and by the UE. During handover procedure, the target MN can indicate the SCG state in the RRC reconfiguration message sent to the UE by the source MN. **Change#5**: CPC and SCG deactivation cannot be configured at the same time, this agreement is not captured.CPC and SCG deactivation cannot be configured at the same time.  |

**Rapporteur comments:**

1. For **Change#1**, the change is not needed, anyway it already says “up to network implementation”, so the network will take all cases into account, not only “SCG deactivation” but also “SCG suspension” .

2. For **Change#2,** we suggest to limit the changes as much as possible, especially to keep legacy text un-touched, so we propose the following update:

Upon SCG failure, if MCG transmissions of radio bearers are not suspended, the UE suspends SCG transmissions for all radio bearers if the SCG failure is not triggered by SCG beam failure and reports the *SCGFailureInformation* to the MN, instead of triggering re-establishment. If SCG failure is detected while MCG transmissions for all radio bearers are suspended, the UE initiates the RRC connection re-establishment procedure.

2. For **Change#3**, we have some sympathy on the change, but different from MN or SN initiated SCG deactivation, the indication sent by the UE is just “preference” information, it is not a “request” for which “response” must be provided. So we prefer to keep the original text, it is sufficient to add SCG deactivation preference to section 7.10

3. For **Change#4**, for SCG deactivation preference indication, we prefer the change proposed in [2]. For UL data arrival on SCG bearer, for readability, we prefer to keep the sentence “For UL data arrival on SCG bearer(s) while the SCG is deactivated, the UE indicates to the MN that it has UL data to transmit over SCG bearer.” in section 7.13. But we are fine to add additional sentence to section 7.10, like “UE transmits UE assistance information to MN when it has UL data to transmit over SCG bearer while the SCG is deactivated.”

4. For **Change#5**, all restriction related to coexistence of CHO/CPC and other operations should be captured in the same place, section 10.1.

**Question 2.3: Do you agree with the changes proposed in [3]? (For Change#2 and Change#4, comments to rapporteur’s proposal are welcome)**

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| Company | Yes/No | Comments if any |
| Nokia | Yes and No | C1 Seems reasonable, although the choice is obvious. So probably not really needed.C2 Looks OK, although proposed text needs improvement. And proposal from rapporteur seems quite nice to us.C3 Disagree, it is a preference, not a request that calls for response.C4 Proposed change is bit complex. in fact in previous CR (R2-2205245) in this email there is much more subtle and compact proposal to capture this one. C5 We are not really sure if this the really the agreement in RAN2? Where is it done?C6 Ok but Summary of change incorrectly says 6.2. |
| LGE | See comments | For the Change #2, we agree with the rapporteur’s suggestion because it seems simpler and to the point. |
| Ericsson | Yes and No | C1: not neededC2: Agree with rapporteur proposalC3: Disagree, for reasons mentioned by rapporteurC4: Agree with rapporteur proposalC5: Tend to disagree. The RAN2#117 agreement below was to not to ptimize using CPC with deactivated SCG, which is not the same as not allowing it.* 1: RAN2 will not optimize using CPC with deactivated SCG in Rel-17. UEs are not required to support the joint configuration in Rel-17 (i.e. UE behaviour is not specified). FFS how to capture this in specifications.
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## 2.4 Corrections in R2-2205926 [4]

In [5], the following change is proposed:

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| **Change#1**: Clause 4.2.1 indicates that "measurement for mobility within the SN can be done directly from the UE to the SN if SRB3 is configured". However, this is only true if the SCG is activated..If the SN is a gNB (i.e. for EN-DC, NGEN-DC and NR-DC), the UE can be configured to establish a SRB with the SN (SRB3) to enable RRC PDUs for the SN to be sent directly between the UE and the SN. RRC PDUs for the SN can only be transported directly to the UE for SN RRC reconfiguration not requiring any coordination with the MN. Measurement reporting for mobility within the SN can be done directly from the UE to the SN if SRB3 is configured and the SCG is activated.**Change#2**: Clause 6.1 indicates that the PSCell is always activated. This could be misunderstood in the context of SCG deactivation.In MR-DC, the UE is configured with two MAC entities: one MAC entity for the MCG and one MAC entity for the SCG. The serving cells of the MCG other than the PCell can only be activated/deactivated by the MAC Control Element received on MCG, and the serving cells of the SCG other than PSCell can only be activated/ deactivated by the MAC Control Element received on SCG. The MAC entity applies the bitmap for the associated cells of either MCG or SCG. When the SCG is not deactivated, the PSCell is always activated, like the PCell (i.e. deactivation timer is not applied to PSCell). With the exception of PUCCH SCell, one deactivation timer is configured per SCell by RRC.**Change#3**: Clause 6.1 mentions PHR for PSCell but PHR is not specific to the PSCell, it is for the SCG.In MR-DC, PHR is independently configured per cell group. Events in one cell group can trigger power headroom reporting in both MCG and SCG. Power headroom information for one cell group is also included in a PHR transmitted in the other cell group. While the SCG is deactivated, PHR for SCG is not reported.**Change#4**: Clause 7.5 indicates that when SRB3 is configured, it is used for SN measurement reports. However, this is not the case when the SCG is deactivated.SRB3 may be used to send *SN RRC Reconfiguration*, *SN RRC Reconfiguration Complete*, *SN Measurement Report*, *SN Failure Information* (i.e., in case of failure for an SCG RLC bearer), *SN UE Assistance Information* message and *SN* *IABOtherInformation*, only in procedures where the MN is not involved. *SN RRC Reconfiguration Complete* messages are mapped to the same SRB as the message initiating the procedure. When the SCG is activated, *SN Measurement Report* messages are mapped to SRB3, if configured, regardless of whether the configuration is received directly from the SN or via the MN. No MN RRC messages are mapped to SRB3.**Change#5**: It is mentioned that, when the SCG is deactivated, the UE does not monitor PDCCH but it is not captured that SPS is also not used, i.e. the UE does not receive from DL-SCH.While the SCG is deactivated, the UE will not transmit PUSCH, SRS and CSI report on SCG, and the UE is not required to monitor PDCCH on SCG and is not required to receive the DL-SCH on the SCG. If configured by the network, the UE performs radio link monitoring on the SCG and beam failure detection on the SCG while SCG is deactivated. In case of SCG activation without performing random access, the network can indicate TCI states to UE for PDCCH/PDSCH reception on PSCell, if not provided, the UE uses the previously activated TCI states. |

**Rapporteur comments:**

1. For **Change#1** and **Change#4**, if the changes are needed, we should also add “the SCG is not suspended” and separate R16 CR is needed. Considering we already have following statement in “section 7.2 Measurements”, we prefer to keep the original wording in section 4.2.1 and 7.5.

When SRB3 is not configured or the SCG is deactivated, reports for measurements configured by the SN are sent on SRB1. When SRB3 is configured and SCG transmission of radio bearers is not suspended and the SCG is not deactivated, reports for measurements configured by the SN are sent on SRB3.

2. For **Change#2** and **Change#3,** the changes are reasonable. (Note: already implemented in the updated CR).

3. For **Change#5**, suggest to simplify the wording as:

“and the UE is not required to monitor PDCCH and receive DL-SCH on SCG”.

**Question 2.4: Do you agree with the changes proposed in [4]? (For Change#5, comments to rapporteur’s proposal are welcome)**

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| Company | Yes/No | Comments if any |
| Nokia | Yes and No | Generally the CR looks good to us, but on changes #1 and #4, we prefer rapporteur’s proposal.While we support simplifying change #5, we think rapporteur’s proposal should say “or receive DL-SCH” instead of “and”, otherwise the text only seems to address the requirement of receiving both PDCCH and DL-SCH. |
| LGE | Yes | For Change#5, we agree with the rapporteur’s proposal because it’s simpler. |
| Ericsson | Yes and No | The CR covers mainly minor issues, that could have been synched with rapporteur before. Some are already corrected in the updated rapporteur CR. We agree with the rapporteur proposals for #1, #4 and #5 with Nokias proposed change “and” -> “or”. |
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## 2.5 Correction in R2-2205259 [5]

In [5], the following change is proposed:

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| **Reason of Change**: The network should ensure there is no uplink control PDU transmission to the deactivated SCG.NOTE: Upon SCG (de)activation, it is up to the network to ensure there is no pending SDUs or PDUs in SCG RLC entity (e.g. instructs the UE to perform PDCP data recovery and RLC re-establishment/release, if needed). Upon or while SCG deactivation, it is up to the network to ensure there is no uplink control PDU transmission to the deactivated SCG (e.g., releases *statusReportRequired* from PDCP entities of SCG bearers if configured, or does not perform QoS flow remapping from a DRB associated to the deactivated SCG to another DRB.) |

**Question 2.5: Do you agree with the change proposed in [5]?**

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| Company | Yes/No | Comments if any |
| Nokia | Yes | This looks reasonable |
| LGE | Yes | We agree to the correction because the network can control the configuration so that there is no uplink control data. |
| Ericsson | Yes |  |
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## 2.6 Correction in R2-2205446 [8]

In [8], the following change is proposed:

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| **Reason of Change**: In 6.1, the sentence that random access is not triggered when TA expires for the deactivated SCG is not needed, since this does not apply to activated SCG either. There is no need to mention what does not happen.In (NG)EN-DC and NR-DC, when SCG is deactivated as described in clause 7.13, the TA timer associated with SCG continues running, the UE considers the TA is valid as long as TA timer is running. In case of SCG activation, the UE can be instructed by the network to perform random access towards PSCell even if the TA timer associated with PSCell is running and RLF and beam failure is not declared. Besides, the UE can be instructed by the network to perform SCG activation without performing random access, if the TA timer associated with PSCell is running and RLM and beam failure detection are configured but RLF or beam failure is not declared. In case of network-initiated SCG activation, both CBRA and CFRA on PSCell are supported. For CFRA, the dedicated RACH resources can be provided in the RRC message used to activate SCG. |

**Rapporteur comments:** This is to capture the below agreement made in RAN2#116e. The intention is to clarify the UE will not trigger RACH to re-sync to PSCell right after TAT expires. But it is true the sentence is also applicable to activated SCG, sofine with the change.

**2: The UE does not perform RACH after TAT expires while the SCG is deactivated.**

**Question 2.6: Do you agree with the change proposed in [8]?**

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| Company | Yes/No | Comments if any |
| Nokia | Yes |  |
| LGE | Yes |  |
| Ericsson | Yes (proponent) |  |
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# 3 CPAC

In [1][6][8][9][10], many editorial changes are proposed for CPAC procedure. And some similar changes are proposed for the same content. Since it is suggested to discuss the corrections with [1] as staring point. The rapporteur merged some obvious editorial changes from [6][8][9][10] in [1] for easier reviewing. The updated CR can be found in “draft\_R2-2206164 Corrections on TS 37.340 for DCCA enhancement” [11].

Except for editorial corrections, some additions or clarifications on procedural text are proposed in [1][6][7][8][9]. These changes will be discussed separately via following questions.

It should be noted that the CPAC/CHO coexistence will be discussed in 1st Week Friday online. So the changes related to CPAC/CHO coexistence shall not be included in the following discussion until the online decision is made.

## 3.1 General principles for Conditional PSCell Addition

In [1][8], it is suggested to capture general principles for CPA in TS 37.340. And two options are proposed:

* Option 1: Remove the description on general principles for CPC in section 10.6 and add a new section (e.g. section 10.6a) to capture general principles for both CPC and CPA [1];
* Option 2: Add a new section (e.g. section 10.2.3) to capture general principles for CPA [8].

**Rapporteur comments:** Both options can work. Option 1 is more general since similar principles are applicable to both CPC and CPA. So it is better to capture them in a common section to avoid some redundant descriptions. Option 2 seems cleaner since no change in the legacy section 10.6 is needed.

**Question 3.1: Do you agree to capture general principles for CPA in TS 37.340? If yes, which option do you prefer?**

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| Company | Yes/No | Comments if any |
| Nokia | Yes, Option 2 | Option 2 is better, i.e. CPA should be described in the section on Secondary Node Addition. Section 10.6 (Option 1) is not desirable (10.6 is on PSCell change).  |
| LGE | Yes | No strong view but option 1 seems a bit better. |
| Ericsson | Yes | Option 2. Prefer 10.2 as it is related to Secondary Node Addition, but could accept option 1 also. |
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## 3.2 Corrections in R2-2204546 [1]

In [1], except for some editorial corrections, the following changes are proposed:

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| Change#1: capture non-coexistence of CPA and CPC in section 10.1, based on RAN2 agreement that “ *RAN2 agree that R17 CPA and R17 CPC cannot coexist*”.Configuration of CPC and CPA for simultaneous operation is not supported in this release.Change#2: capture non-coexistence of CPC and SCG deactivation in section 10.1, based on RAN2 agreement that “*RAN2 will not optimize using CPC with deactivated SCG in Rel-17. UEs are not required to support the joint configuration in Rel-17 (i.e. UE behaviour is not specified).*” Configuration of CPC/CPA and SCG deactivation for simultaneous operation is not supported in this release.Change#3: capture events A4/B1 for CPA and MN initiated CPC in section 10.6.- An execution condition may consist of one or two trigger condition(s) (SN initiated CPC events A3/A5, as defined in TS 38.331 [4], CPA or MN initiated CPC event A4, as defined in TS 38.331 [4], CPA or MN initiated CPC event B1, as defined in TS 36.331 [10]). Only single RS type is supported and at most two different trigger quantities (e.g. RSRP and RSRQ, RSRP and SINR, etc.) can be configured simultaneously for the evaluation of CPC/CPA execution condition of a single candidate PSCell. |

**Rapporteur comments:** It’s fine to capture the missing agreements in the stage-2 spec.

**Question 3.2: Do you agree the changes proposed in [1]?**

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| --- | --- | --- |
| Company | Yes/No | Comments if any |
| Nokia |  | Change#1 is not needed (this is rather obvious and we do not have to describe everything explicitly).Change#2: we have agreed the behavior is unspecified, so fine to reflect it.Change#3: not sure this is pertinent here. This part of the description applies to CPC? |
| LGE | Yes |  |
| Ericsson |  | Change#1: We don’t think it is not needed.Change#2: We don’t think anything needs to be captured, that was the agreement. Change#3: We don’t think this works anyway, so we prefer not to make the addition. In legacy this was meant for load balancing, how can that be used for CPC? The UE doesn’t know the load.  |
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## 3.3 Corrections in R2-2204957 [6]

In [6], except for some editorial corrections, the following changes are suggested to add:

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| Change#1: Add some clarification for CPAC modification procedure in section 10.3.In case of CPA or CPC, this procedure may also be triggered by the target SN to add some prepared PSCells from the suggested list or cancel part of the prepared PSCells. Change#2: Add some clarification for SN initiated conditional SN change procedure in section 10.5.8a. If an NR RRC response message is included, the MN informs the source SN with the NR RRC response message (*RRCReconfigutationComplete\*\**) for the source SN via *SgNB Change Confirm* message. If step 4 and 5 are skipped, the MN will indicate the candidate PSCells accepted by the target SN(s) to the source SN in the *SgNB Change Confirm* message.... |

**Rapporteur comments:** Based on the Reply LS from RAN3 in R2-2204493, it is fine to add such clarification for CPAC modification procedure and SN initiated conditional SN change procedure.

**Question 3.3: Do you agree the changes proposed in [6]?**

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| Company | Yes/No | Comments if any |
| Nokia | Yes | Fine with both changes. |
| LGE | Yes |  |
| Ericsson | Yes | Fine to add this. |
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## 3.4 Correction in R2-2204802 [7]

The author of [7] suggested to add the handling of full-config for inter-SN CPC in section 10.5:

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| NOTE 5a: In case the target SN includes the indication of the full RRC configuration, the MN performs release of the SN terminated radio bearer configuration and release and add of the NR SCG configuration part towards the UE in the conditional configuration.... |

**Rapporteur comments:** The similar note has been added for the legacy SN change procedure in EN-DC, but not for MR-DC with 5GC. So it is fine to add the change for inter-SN CPC procedure in EN-DC to align with the legacy procedural text, but not for MR-DC with 5GC.

**Question 3.4: Do you agree the changes proposed in [7]?**

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| Company | Yes/No | Comments if any |
| Nokia |  | No strong view, using a NOTE to capture such behavior is not the right approach in our opinion. So our preference is to either capture a similar text in the procedure directly or say nothing.  |
| LGE | Yes | Agree with rapporteur comment |
| Ericsson | Yes | Fine to add this.  |
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## 3.5 Handling on CPA evaluation

The author of [8] [9][10] proposed that the UE stops evaluating also CPA execution conditions when *SCGFailureInformation* is transmitted, as the UE may have applied a CPA configuration which failed and triggered *SCGFailureInformation.* The following change is added in section 7.7:

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| In case of CPA/CPC, upon transmission of the *SCGFailureInformation* message to the MN, the UE stops evaluating the CPA/CPC execution condition. The UE is not required to continue measurements for candidate PSCell(s) for execution condition upon transmission of the *SCGFailureInformation* message to the MN. |

**Rapporteur comments:** In CHO/CPC, the UE shall stop evaluating the execution condition(s) once CHO/CPC is triggered. And the same principle should be applicable to CPA as well. And [1] [8] suggested to capture general principles for CPA handling in TS 37.340. If the change in [1] or [8] is agreed, the CPA evaluation is stopped upon triggering the execution of CPA. And no other SCG failure shall happen except for CPA execution failure when CPA is configured, as no current SCG is configured, so no need to capture the redundant stop operation for CPA evaluation upon initiating the SCG failure information procedure.

In order to avoid the ambiguity, rapporteur suggests change “In case of CPA/CPC” to “In case that CPC is configured”.

**Question 3.5: Do you agree the change on CPA evaluation proposed in [8][9][10]?**

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| Company | Yes/No | Comments if any |
| Nokia | Yes | We suggest the same change in our R2-2205527, which seems to be missing in the list of referenced TDocs. |
| LGE | Yes | We think the stop operation for CPA should be needed because SCG failure can happen in the case that the network may command the legacy SN addition while CPA has been configured. |
| Ericsson | Yes |  |
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## 3.6 Corrections in R2-2205446 [8]

In [8], except for some editorial corrections, the following changes are proposed:

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| Change#1: The text saying that the first UE response message at CPA does not contain any complete message to the S-SN has been removed, as the S-SN is allowed to update its configuration at any time and it cannot be guaranteed that a complete message to the S-SN is not included.4. The UE applies *RRCConnectionReconfiguration*, stores the CPA configurationand replies to the MN with an *RRCConnectionReconfigurationComplete* message. In case the UE is unable to comply with (part of) the configuration included in the *RRCConnectionReconfiguration\** message, it performs the reconfiguration failure procedure.Change#2: It has been added that the UE stops evaluating execution conditions for other target candidates when the condition(s) has been met for one target candidate PSCell.Change#3: At CPAC execution it has been corrected that the UE response message does not contain the PSCell, but information for the MN to identify the target SN.4a. The UE starts evaluating the execution conditions. If the execution conditionof one candidate PSCell is satisfied, the UE applies *RRCConnectionReconfiguration\** messagecorresponding to the selected candidate PSCell, and sends an *RRCConnectionReconfigurationComplete\** message, including an NR *RRCReconfigurationComplete\*\** for the selected candidate PSCell, and information enabling the MN to identify the target candidate SN of the selected PSCell.Change#4: The release of other potential SNs have been added in the figures at execution of CPAC.Change#5: The notation of the RRC messages have been updated, so that the same notation is used for the same type of message in all use cases. No star and one star are used for MN messages, two star for T-SN messages and three star for S-SN messages.3. The MN sends to the UE an *RRCConnectionReconfiguration* message including the CPA configuration, (i.e. a list of *RRCConnectionReconfiguration\** messages)and associated execution conditions, in which a *RRCConnectionReconfiguration\** message contains an MCG configuration and the SCG configuration in the *RRCReconfiguration\*\** received from the candidate SN and possibly an MCG configuration. Besides, the *RRCConnectionReconfiguration* message can also include an updated MCG configuration, e.g., to configure the required conditional measurements.4. The UE applies *RRCConnectionReconfiguration*, stores the CPA configurationand replies to the MN with an *RRCConnectionReconfigurationComplete* message. In case the UE is unable to comply with (part of) the configuration included in the *RRCConnectionReconfiguration\** message, it performs the reconfiguration failure procedure.4a. The UE starts evaluating the execution conditions. If the execution conditionof one candidate PSCell is satisfied, the UE applies *RRCConnectionReconfiguration\** messagecorresponding to the selected candidate PSCell, and sends an *RRCConnectionReconfigurationComplete\** message, including an NR *RRCReconfigurationComplete\*\** for the selected candidate PSCell, and information enabling the MN to identify the target candidate SN of the selected PSCell.5a-5b. The MN informs the target candidate SN of the selected PSCell that the UE has completed the reconfiguration procedure successfully via *SgNB ReconfigurationComplete* message, including the *RRCReconfigurationComplete\*\** message. The MN sends the SgNB Release Request message(s) to cancels CPA in the other target candidate SN(s), if configured.1. The UE performs synchronisation towards the selected PSCell indicated in *RRCConnectionReconfiguration\** message. The order the UE sends the *RRCConnectionReconfigurationComplete\** message and performs the Random Access procedure towards the SCG is not defined. The successful RA procedure towards the SCG is not required for a successful completion of the RRC Connection Reconfiguration procedure.

...Change#6: It has been added that the UE stops evaluating execution conditions once PCell change is triggered.A Conditional PSCell Change (CPC) is defined as a PSCell change that is executed by the UE when execution condition(s) is met. The UE starts evaluating the execution condition(s) upon receiving the CPC configuration, and stops evaluating the execution condition(s) once PSCell change or PCell change is triggered. Intra-SN CPC without MN involvement, inter-SN CPC initiated either by MN or SN are supported. |

**Rapporteur comments:**

For change#1, there is no S-SN before CPA execution. So the MN RRC reconfiguration message with conditional reconfiguration for CPA shall never contain S-SN configuration. Accordingly, the first UE response message at CPA shall not contain any complete message to the S-SN. The current text is correct, and no change is needed.

For change#2, the current spec has captured this for CPC handling in section 10.6. The similar principles for CPA handling is proposed to be added in a new section. And no other corresponding change has been founded in [8]. so the change is not needed.

For change#3, the RRC reconfiguration complete message contains the conditional reconfiguration index (e.g. *condReconfigId*) for the selected PSCell, which can also be considered as a kind of PSCell information. So the current text is correct. However, the proposed change further clarifies the usage of the indicated information. It seems also fine to have such clarification.

For change#4, it is fine to add the step on release of other potential SNs in the CPAC figures.

For change#5, the current notion of RRC messages for CPAC configuration is clear. So it seems no much need to update the notion of each RRC message.

For change#6, we have never discussed whether to stop evaluating execution conditions upon PCell change in R16 CPC and R17 CPAC discussion. But based on the current spec, the UE will execute PCell change upon reception of PCell change command before any CPC execution condition is satisfied. So it makes sense to stop the evaluation upon PCell change to avoid the execution collision between PCell change and CPAC execution. The similar handling upon PSCell change has been captured in the current spec. Besides, if the proposed change is agreed, the similar change for CPC in R16 spec may also be required.

**Question 3.6: Whether the UE is required to stop evaluating execution conditions for CPA/CPC upon PCell change?**

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| Company | Yes/No | Comments if any |
| Nokia | Yes | Seems we have not supported so far the handover with CPAC.  |
| LGE | No | No strong view but we think the behaviour is not needed because, after PCell change, the conditional configuration for CPA will be removed regardless of success or failure. |
| Ericsson | Yes | It doesn’t make sense to continue evaluating. |
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**Question 3.7: Do you agree the changes proposed in [8]?**

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| Company | Yes/No | Comments if any |
| Nokia | Partly | Change 4 and 6 are OK. Changes 1 and 3 do not seem to be consistently approaching the handling of RRCReconfiguration with “\*”. But we agree this description should be somehow aligned and simplified wherever possible. |
| LGE | See comment | Agree with rapporteur comments except the change#6. |
| Ericsson | Yes | For Change#1 we don’t think it is clear what “CPA configuration” is, if that is only the configuration that is applied upon execution or if it includes the configuration of CPA with the execution conditions. If it is the latter the current text is not correct. We can avoid specifying what “CPA configuration” is if we just remove “excluding the CPA configuration”. In general, we don’t think it is good to specify what is not done or what is not included, that could be a whole lot of things and it is hard to guarantee that things will never happen. Better just to say what is done and what is included.For change#2 we don’t understand the motivation from the rapporteur to not include it. The proposed change was also not copied to the discussion, so hard to see what change that is change#2. We think the change is the same as proposed by other companies in 3.5 and there it was proposed to be agreed.For change#3, we think the rapporteur says it can be agreed? That sounds good in such case.We think change#5 makes the text a lot easier to read and makes it more understandable to the reader. In the current text it first says “RRC reconfiguration message” and then within brackets it is clarified which RRC reconfiguration message it is. This repetition of “RRC reconfiguration message” makes it difficult to read with a flow. Also, it is very confusing when the notation changes in different use cases. E.g. for inter-SN CPC four stars are used for the T-SN message, but three stars are used for the T-SN message in other use cases. Do you have any other proposal how to improve the readability of the text?  |
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## 3.7 Editorial Corrections from [1][6][8][9][10]

The rapporteur merged some obvious editorial changes from [6][8][9][10] in [1] for easier reviewing. The updated CR can be found in “draft\_R2-2206164 Corrections on TS 37.340 for DCCA enhancement” [11].

Note: Not every change from [6][8][9][10] is merged into [11] since some changes seem not critical. And there are some collision between changes from different CRs. So if you have any comments to the updated CR in [11], please add your comments in the table below or directly add your comments to the CR in [11] by using comment bubbles.

**Question 3.8: Do you agree the editorial changes in [10]?**

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| --- | --- | --- |
| Company | Yes/No | Comments if any |
| Nokia |  | Simultaneous CPA/CPC in 10.1 does not have to be captured.Section 10.6a is not a preferable approach.In general, some changes do not seem to be purely editorial.Some changes, which were submitted in R2-2205527, are not considered in this thread at all. |
| LGE |  | No strong view but seems fine  |
| Ericsson |  | No need to capture simultaneous CPA/CPC in 10.1.We prefer our proposal of 10.2.3. Adding some kind of description for CPA is important though. |
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## 3.8 Any other issues

If companies have any other issues or concerns, 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. R2-2204546 Corrections on TS 37.340 for DCCA enhancements ZTE Corporation, Sanechips, CATT CR Rel-17 37.340 17.0.0 0310 - F LTE\_NR\_DC\_enh2-Core
2. R2-2205245 37.340 corrections regarding deactivated SCG Nokia, Nokia Shanghai Bell CR Rel-17 37.340 17.0.0 0314 - F LTE\_NR\_DC\_enh2-Core
3. R2-2205367 Corrections on eDCCA vivo CR Rel-17 37.340 17.0.0 0316 - F LTE\_NR\_DC\_enh2-Core
4. R2-2205926 Corrections for SCG (de)activation Huawei, HiSilicon draftCR Rel-17 37.340 17.0.0 F LTE\_NR\_DC\_enh2-Core
5. R2-2205259 Network behaviour at/while SCG deactivation Fujitsu discussion Rel-17 LTE\_NR\_DC\_enh2-Core
6. R2-2204957 Miscellaneous corrections to 37.340 CPAC Lenovo discussion Rel-17
7. R2-2204802 Correction on full configuration in TS 37.340 vivo CR Rel-17 37.340 17.0.0 0312 - F LTE\_NR\_DC\_enh2-Core
8. R2-2205446 Correction CR for MR-DC Ericsson CR Rel-17 37.340 17.0.0 0320 - F LTE\_NR\_DC\_enh2-Core
9. R2-2205927 Corrections for CPAC Huawei, HiSilicon draftCR Rel-17 37.340 17.0.0 F LTE\_NR\_DC\_enh2-Core
10. R2-2205527 Rel-17 CPAC corrections to 37.340 Nokia, Nokia Shanghai Bell CR Rel-17 37.340 17.0.0 0319 - F LTE\_NR\_DC\_enh2-Core

*Update of rapporteur CR:*

1. draft\_R2-2206164 Corrections on TS 37.340 for DCCA enhancement