3GPP TSG RAN WG2 Meeting #116-e R2-21xxxxx

**Electronic meeting, 1st -12th November 2021**

**Agenda item: 8.2.5**

**Source: Intel Corporation**

**Title: Report of email discussion [Post116-e][214][R17 DCCA] UE capabilities (Intel)**

**Document for: Discussion and Decision**

# Introduction

This is the email discussion report for following email discussion:

* **[Post116-e][214][R17 DCCA] UE capabilities (Intel)**

Scope: Update RRC and 38.306 CRs for UE capabilities

Intended outcome: Running CRs for RRC and 38.306

Deadline: Short (not for RP)

# Discussion

In the first round of discussion on DCCA UE capabilities [1], the following proposals are made to postpone the discussion on UE initiated SCG activation and A3/A5 based execution condition for inter-SN CPC.

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| *Proposal 3: the discussion on the following UE capabilities is postponed until they are agreed.*  *1) UE initiated SCG activation*  *2) A3/A5 based execution condition for inter-SN CPC* |

Regarding UE initiated SCG activation, the following agreements have been achieved in this meeting:

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| **1: RAN2 will not ask RAN3 to allow SCG activation by the SN without MN's response.**  **2: Support the following solutions for UL data arrival while the SCG is deactivated:**  **1) for split bearers, send the data via the MCG leg. FFS how this can be implemented in Stage-3.**  **2) for SCG bearers, the UE indicates via the MCG that it has UL data to send for an SCG bearer.**  **- FFS indication contents and format (e.g. MN RRC message, embedded SN RRC message)**  **- FFS whether this indication can be used for split bearers**  **4: Proponents who think MCG link recovery via the deactivated SCG should be supported should bring CR to next meeting to illustrate the needed Stage-3 details.** |

Currently the UE initiated SCG activation has not been agreed, so there is no need to update UE capabilities accordingly in draft CRs.

**Observation 1: since UE initiated SCG activation has not been agreed, there is no need to update UE capabilities accordingly in draft CRs.**

Regarding A3/A5 based execution condition for inter-SN CPC, RAN2 made the agreements below in this meeting:

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| * No consensus to support A3/A5 for PSCell in MN-initiated CPC. |

So the A3/A5 based execution condition for inter-SN CPC has not been agreed, there is no need to update UE capabilities accordingly in draft CRs.

**Observation 2: since A3/A5 based execution condition for inter-SN CPC has not been agreed, there is no need to update UE capabilities accordingly in draft CRs.**

In the first round of discussion on DCCA UE capabilities [1], we also have some open issues on some UE capabilities’ prerequisite feature groups. According to the agreements below, they are postponed to next meeting, so we don’t need to rush things in this short post-meeting email discussion.

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| * 2: RAN2 to further discuss the following open issues in the next meeting:   1) Whether to use condPSCellChange-r16 as the Prerequisite for R17 MN initiated CPC?  2) Whether to reuse R15 RLF/BFD UE capabilities for RLF/BFD monitoring on deactivated SCG?  3) Whether to make support of RLM/BFD monitoring on deactivated SCG as the Prerequisite for Rachless SCG activation?  4) Whether to have separate capabilities for Activation/Deactivation of SCG in Resume and Reconfiguration cases? |

In this meeting, the following UE capability design has been agreed as baseline. And the corresponding specification changes have been implemented in R2-2109677 and R2-2109678.

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| **1: consider the following UE capabilities and corresponding descriptions as baseline (can still discuss exact details in the next meeting):**   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | **Index** | **Feature group** | **Components** | **Prerequisite feature groups** | **Need of FDD/TDD differentiation** | **Need of FR1/FR2 differentiation** | **Type** | **Mandatory/Optional** | | x-1 | Activation/Deactivation of SCG | Support of activation/deactivation of SCG. |  | No | Yes | Per UE | Optional with capability signalling | | x-2 | Activation/Deactivation of SCG | RACH-less SCG activation. | FFS | No | Yes | Per UE | Optional with capability signalling | | x-3 | CPAC | CPA for NR-DC |  | No | No | Per UE | Optional with capability signalling | | x-4 | CPAC | CPA for (NG)EN-DC |  | No | No | Per UE | Optional with capability signalling | | x-5 | CPAC | MN initiated CPC in NR-DC | FFS | No | No | Per UE | Optional with capability signalling | | x-6 | CPAC | MN initiated CPC in (NG)EN-DC | FFS | No | No | Per UE | Optional with capability signalling | |

In this short post-meeting email discussion, companies are invited to provide comments on the draft CRs as below. And the draft CRs can be updated based on the consensus (if possible) we made in this email discussion.

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| [R2-2109677](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_116-e/Docs/R2-2109677.zip) draft 331 CR for DCCA UE capabilities Intel Corporation draftCR Rel-17 38.331 16.6.0 B LTE\_NR\_DC\_enh2-Core  [R2-2109678](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_116-e/Docs/R2-2109678.zip) draft 306 CR for DCCA UE capabilities Intel Corporation draftCR Rel-17 38.306 16.6.0 B LTE\_NR\_DC\_enh2-Core   * Can be considered as baseline for CRs on DCCA UE capabilities in the next meeting |

**Question 1: Companies are invited to provide comments here on current UE capabilities draft CRs, i.e., R2-2109677 and R2-2109678.**

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| **Company** | **Comments** |
| Nokia | Regarding the per-UE capability for the DC-related features e.g. Is it assumed understanding such that when CPA/CPC support is indicated per UE, this is supported in the bands/band combinations for which the UE supports DC?  There are capabilities for CPA (x-3, x-4) and MN-initiated CPC (x-5, x-6). However, how is the support for ‘SN-initiated CPC indicated’? |
| Huawei, HiSilicon | We suggest adding a note saying that the FR/XDD differentiation is TBC.  On "MN-initiated", we suggest rewording the definition from UE perspective (based on RRC message reception and contents) rather than from network perspective. Could add an editor's note now like "Need to clarify from UE perspective what this refers to exactly". |
| Intel | For Nokia’s questions:  In our understanding, yes, per UE CPAC capabilities means this is supported in the bands/band combinations for which the UE supports DC.  In R16, the UE capabilities for ‘SN-initiated CPC’ have been specified as ‘condPSCellChange-r16’. And in TS 37.340, we made it clear “Only intra-SN CPC without MN involvement is supported”. But for “SN-initiated CPC with MN involvement” introduced in R17, we can further discuss if from UE perspective it is the same as "MN-initiated CPC".  For Huawe’s comments:  Ok to further discuss the following two issues:   1. FRX/XDD differentiation; 2. Further clarify from UE perspective what "MN-initiated CPC" refers to exactly. |
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**Question 2: Whether current UE capabilities draft CRs, i.e.,** **R2-2109677 and R2-2109678, can be endorsed as running CR, OR keep current agreement unchanged, i.e., “Can be considered as baseline for CRs on DCCA UE capabilities in the next meeting”.**

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| **Company** | **Views** |
| Nokia | It might be too much to say that this is running CR but no strong view. Of course these are fine as baseline but if we agree them as running CR we have concern that there is no way to discuss anything on UE capabilities anymore. |
| Huawei, HiSilicon | Agree with Nokia. We could say this is a baseline but does not forbid any later discussion. |
| Intel | Ok to keep current agreement unchanged. |
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**Summary:**

According to companies’ comments, the following two issues can be further discussed for DCCA UE capabilities:

1. FRX/XDD differentiation;
2. Further clarify from UE perspective what "MN-initiated CPC" refers to exactly.

And there is no need to update current draft CRs for UE capabilities, i.e. keep current agreement unchanged, i.e., R2-2109677 and R2-2109678 “Can be considered as baseline for CRs on DCCA UE capabilities in the next meeting”.

**Proposal 1: the following two issues can be further discussed for DCCA UE capabilities:**

**1. FRX/XDD differentiation;**

**2. Further clarify from UE perspective what "MN-initiated CPC" refers to exactly.**

# Conclusion

Based on companies’ views, the following proposals are made.

**Proposal 1: the following two issues can be further discussed for DCCA UE capabilities:**

**1. FRX/XDD differentiation;**

**2. Further clarify from UE perspective what "MN-initiated CPC" refers to exactly.**

# References

[1] [R2-2109676](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_116-e/Docs/R2-2109676.zip) Report of email discussion [Post115-e][214][R17 DCCA] Capabilities (Intel) Intel Corporation