**3GPP TSG-RAN WG1 #104-e R1-21xxxxx**

**e-Meeting, Jan 25- Feb 05, 2021**

**Source: Moderator (Ericsson)**

**Title: Summary of Email discussion [104-e-NR-MRDC-CA-01]**

**Agenda item:** **7.2.10**

**Document for:** **Discussion and Decision**

# 1 Introduction

This document provides summary of email discussion [104-e-NR-MRDC-CA-01] on following issues discussed during preparation phase of RAN1#104-eMeeting [6]

[104-e-NR-MRDC-CA-01] Email discussion/approval on power control for dual connectivity and SCell Dormancy until 10/29 – Ravi (Ericsson)

* PC-1: Proposal 1 in R1-2100420
* PC-2: R1-2100584
* Dorm-1: Proposal 1 in R1-2100093
* Dorm-4: R1-2101751

# 2. Discussion

### 2.1 Dorm-1

Please provide your input to below question Q1, preferably by 01/26 (11:59PM UTC).

#### Question 1

Q1. Is it OK to agree to below TP for sub-clause 9 of TS38.213 from Proposal 1 in [R1-2100093](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100093.zip)?

|  |
| --- |
| If in an active DL BWP a UE monitors PDCCH either for detection of DCI format 0\_1 and DCI format 1\_1 or for detection of DCI format 0\_2 and DCI format 1\_2, a priority index can be provided by a priority indicator field. If a UE indicates a capability to monitor, in an active DL BWP, PDCCH for detection of DCI format 0\_1 and DCI format 1\_1 and for detection of DCI format 0\_2 and DCI format 1\_2, a DCI format 0\_1 or a DCI format 0\_2 can schedule a PUSCH transmission of any priority, a DCI format 1\_1 or a DCI format 1\_2 can schedule a PDSCH reception and trigger a PUCCH transmission with corresponding HARQ-ACK information of any priority, and a DCI format 1\_1 can indicate SCell dormancy and trigger a PUCCH transmission with corresponding HARQ-ACK information of any priority.  |

*Note: This issue was also discussed in [103-e-NR-MRDC-CA-01] email thread (Q2 of Dormancy Topic 3)*

Companies are requested to indicate their view about the above question in the Table below.

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Yes/No** | **Comments (Dorm-1, Q1)** |
| ZTE | Yes | We support the CR.Currently, the spec has provided corresponding description for SPS PDSCH, SPS release and DG-PDSCH (copied below). But the description for SCell dormancy indication without scheduling PDSCH is missing.

|  |
| --- |
| **TS 38.213 Section 9 (HARQ-ACK priority determination for SPS and SPS release.)**A PUSCH or a PUCCH transmission, including repetitions if any, can be of priority index 0 or of priority index 1. For a configured grant PUSCH transmission, a UE determines a priority index from *phy-PriorityIndex*, if provided. For a PUCCH transmission with HARQ-ACK information corresponding to a SPS PDSCH reception or a SPS PDSCH release, a UE determines a priority index from *harq-CodebookID*, if provided. For a PUCCH transmission with SR, a UE determines the corresponding priority as described in Clause 9.2.4. For a PUSCH transmission with semi-persistent CSI report, a UE determines a priority index from a priority indicator field, if provided, in a DCI format that activates the semi-persistent CSI report. If a priority index is not provided to a UE for a PUSCH or a PUCCH transmission, the priority index is 0.  |

|  |
| --- |
| **TS 38.213 Section 9 (HARQ-ACK priority determination for corresponding PDSCH reception.)**If in an active DL BWP a UE monitors PDCCH either for detection of DCI format 0\_1 and DCI format 1\_1 or for detection of DCI format 0\_2 and DCI format 1\_2, a priority index can be provided by a priority indicator field. If a UE indicates a capability to monitor, in an active DL BWP, PDCCH for detection of DCI format 0\_1 and DCI format 1\_1 and for detection of DCI format 0\_2 and DCI format 1\_2, a DCI format 0\_1 or a DCI format 0\_2 can schedule a PUSCH transmission of any priority and a DCI format 1\_1 or a DCI format 1\_2 can schedule a PDSCH reception and trigger a PUCCH transmission with corresponding HARQ-ACK information of any priority.  |

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| Qualcomm | No | The Case 2 PDCCH is supposed to be similar to SPS PDSCH release for which the specification text of the proposed TP does not have any explicit text. Then there is no need to have the Case 2 PDCCH explicitly mentioned in the spec. |
| Samsung | No | The main issue/topic in the referenced paragraph is that the PUCCH and PUSCH that are associated with the DCI formats have a priority. There is no need to mention what a DCI can do – that is known (it can also be used for SPS PDSCH release, or trigger Type-3 codebook without scheduling PDSCH, or other things in the future) |
| Huawei | No | Share the view with Samsung |
| NTT DOCOMO | No | Agree with Samsung’s comment. |
| vivo | No | Agree with Samsung’s comment. |
| Nokia, NSB | No | Agree with Samsung’s view |
| MTK | Yes | We see the spec more clear with the proposed TP. |
| Ericsson | Yes |  |
| CATT | No | Share Samsung’s view |

### 2.2 Dorm-4

Please provide your input to below question Q1, preferably by 01/26 (11:59PM UTC).

#### Question 1

Q1. Is it OK to agree to the draft CR for 38.212 in [R1-2101751](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2101751.zip)?

Companies are requested to indicate their view about the above question in the Table below.

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Yes/No** | **Comments (Dorm-4, Q1)** |
| ZTE |  | As discussed in the preparation phase, the 1st change in this CR is not needed.Ok with the 2nd change. |
| Qualcomm | No and Yes | For change 1, Spec is clear enough, these is no need to make any update. Note that for SPS release and NR-U one-shot HARQ-ACK feedback, the spec did not mention them in the table 7.3.1-1 either and no confusion was caused.Change 2 is fine. |
| Samsung | No | That DCI 1\_1 can indicate SCell dormancy is clear in 38.213That the UE needs to have dormant and non-dormant BWP for Scell dormancy operation is also clear both from 38.213 and from 38.321 and 38.331. |
| Huawei | Yes | OK to drop the first change.On the 2nd change, the DRX condition and 2 BWP configuration are captured for case 1 but nor for case 2/format 2\_6, for which reason we think it can be misleading. |
| NTT DOCOMO | Yes | We are fine with 2nd change in R1-2101751. |
| vivo | No | The first change is not needed as commented in the preparation phase.The second change is not needed at least for the part of DCI format 1\_1. For the part of change to DCI 2\_6, we would like to know the consequence of this change. Given that DCI 2\_6 is a group common DCI, if a UE is reconfigured by RRC (e.g., changing the number of DL BWP of the SCell), does it mean that the other UEs configured with that DCI 2\_6 should be reconfigured together, as some of the fields become present/absent? |
| Nokia, NSB | Yes | The first change is a clarification that alone would not warrant for a CR, but it is clearly correct. If we are going to agree on the 2nd change, we could as well be opportunistic and clarify what the different DCI formats can be used for. In order t accommodate Qualcomm’s comment, the phrasing should be generalized to something like “and additional control procedures as defined in subclause 7.3.1.2.2” |
| MTK | Yes, but | We are fine with 1st change.For 2nd change, it’s generally fine, but we have similar question as vivo. |
| Huawei-v2 |  | For vivo and MTK’s question, we think it is relevant to another question, which is: whether the bitmap size is changed if the number of configured SCell groups are changed due to reconfiguration.In last meeting, we have one conclusion as follows, which implies that the bitmap size is changed if the number of configured SCell groups are changed due to reconfiguration. This is also consistent with the current spec in 38.213 “*the bitmap size is equal to the number of groups of configured SCells where each bit of the bitmap corresponds to a group of configured SCells from the number of groups of configured SCells*”.Conclusion in RAN1 #103-e:In description of SCell dormancy indication in 38.212, “…*MSB to LSB of the bitmap corresponding to the first to last configured SCell group*...” implies that the MSB to LSB of the bitmap correspond to the first to last configured SCell group in ascending order of *DormancyGroupID*.Come back to the question, for DCI format 2\_6, we think the other UEs configured with that DCI 2\_6 are not needed to be reconfigured together if some of the fields become present/absent or size changed. This is because for one UE, the block’s start location is clearly determined by the parameter “*psPositionDCI-2-6*”, and the total DCI size is still equal to the parameter “*sizeDCI\_2-6*”. However, the gNB can always choose to reconfigure the DCI format for all the relevant UEs based on its implementation.  |
| Ericsson | No | Change to Table 7.3.1-1 or update in description of DCI format 1\_1 is not needed.Regarding change to Case 2 dormancy, if it is agreed that spec clarification is needed, we prefer the correction proposed in R1-2008566 instead as it clearly explains the conditions. Regarding change to DCI 2-6, we don’t think it is needed as the field description is clear. *SCell dormancy indication – 0 bit if higher layer parameter dormancyGroupOutsideActiveTime is not configured; otherwise 1, 2, 3, 4 or 5 bits bitmap determined according to higher layer parameter dormancyGroupOutsideActiveTime, where each bit corresponds to one of the SCell group(s) configured by higher layers parameter dormancyGroupOutsideActiveTime, with MSB to LSB of the bitmap corresponding to the first to last configured SCell group.* |
| CATT | No | The SCell dormancy indication bits in DCI format in 38.212 are the placeholder for the intended function. The general procedure and behavior of SCell dormancy are clearly captured in 38.213. |

### 2.5 PC-1

Please provide your input to below question Q1, preferably by 01/26 (11:59PM UTC).

#### Question 1

Q1. Can companies indicate which of the below options is/are preferred?

* Option 1
	+ For a UE is configured with both MCG and SCG using NR radio access in FR2, the UE performs transmission power control independently per cell group (i.e., Option 1 in [R1-2100420](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100420.zip))
* Option 2
	+ For a UE is configured with both MCG and SCG using NR radio access in FR2, if p-NR-FR2-r16 for MCG or SCG is not provided by higher layer, the UE performs independent power control per cell group, and it does not expect to be provided with nrdc-PCmode-FR2 (i.e., Option 2 in [R1-2100420](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100420.zip))
* Option 3
	+ Re-visit this issue (if needed) after checking RAN4 reply to the LS in [R1-2100027](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100027.zip) [5]
* Option 4
	+ Other (please explain details in comments)

Companies are requested to indicate their view about the above question in the Table below.

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Preferred Option(s)** | **Comments (PC-1, Q1)** |
| ZTE | Option3 | The discussion here highly depends on RAN4’s input. Thus, we prefer to wait for RAN4’s LS response first. |
| Qualcomm | Option 1 |  |
| Samsung | Option 1 |  |
| Huawei | Option3 | Related to RAN4’s usage of parameter p-NR-FR2 |
| NTT DOCOMO | Option 3 | It may be better to wait for RAN4 discussion outcome. |
| vivo | Option 1 | Prefer to discuss this issue at the beginning. |
| Nokia, NSB | Option 1 | RAN1 already defined all details for option 1. We do not see a reason to revert at this moment. If further enhancements are available according to new hardware assumptions, it should be done in a new WI in a later release. |
| MTK | Option 1 |  |
| Ericsson | Option 3 | We prefer to wait for RAN4 input.  |
| CATT | Option 1 | UE power control functions are always determined in RAN1.  |

### 2.5 PC-2

Please provide your input to below question Q1, preferably by 01/26 (11:59PM UTC).

#### Question 1

Q1. Is it OK to agree to below TP for sub-clause 7.6.2 of TS38.213 from Proposal 1 in [R1-2100584](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100584.zip)?

The UE does not expect to have PUSCH, PUCCH, PRACH, or SRS transmissions on the MCG that

- are scheduled/triggered by DCI formats in PDCCH receptions with a last symbol that is earlier by less than or equal to $T\_{offset}$ from the first symbol of the transmission occasion on the SCG, and

- overlap with the transmission occasion on the SCG

Companies are requested to indicate their view about the above question in the Table below.

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Yes/No** | **Comments (PC-2, Q1)** |
| Qualcomm | Yes |  |
| Samsung  | Yes |  |
| Huawei |  | Regarding this PRACH issue, in RAN1#101e, it was discussed a bit and no specific change was introduced for it because of concerns from some companies. In our understanding, PDCCH order triggering PRACH is used for link recovery like synchronization recovery. Restricting such essential recovery seems not a complete solution.  |
| NTT DOCOMO | Yes |  |
| vivo | Yes |  |
| Nokia, NSB | Yes |  |
| MTK | Yes | This was discussed in RAN1 #103e and consensus was reached in email discussion. It was not captured due to lack of meeting time. |
| Ericsson | OK |  |
| CATT | OK |  |

# 3 Conclusions

TBU

# 4 References

1. [R1-2100093](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100093.zip) Maintenance of Rel-16 MR-DC and CA ZTE
2. [R1-2100420](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100420.zip) Maintenance on MR-DC and CA enhancements vivo
3. [R1-2100584](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100584.zip) Remaining issues on Rel-16 uplink power control for supporting NR-NR dual-connectivity MediaTek Inc.
4. [R1-2101751](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2101751.zip) Corrections on SCell dormancy in TS 38.212 Huawei, HiSilicon
5. [R1-2100027](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100027.zip) Reply LS on power control for NR-DC, LS to RAN4, RAN2#112e, Nov 2020.
6. [R1-2101792](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Inbox/R1-2101792.zip) Moderator summary of MR DC-CA pre-meeting preparation phase Moderator (Nokia)