**3GPP TSG-RAN WG1 #102-e R1-200xxxx**

**e-Meeting, Aug 17- Aug 28, 2020**

**Source: Moderator (Ericsson)**

**Title: Email discussion [102-e-NR-MRDC-CA-Dormancy-01]**

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

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

# 1 Introduction

This document provides summary of email discussion [102-e-NR-MRDC-CA-Dormancy-01]on following issues discussed during preparation phase of RAN1#102-eMeeting

Below are the topics identified in [R1-2006995](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_102\Docs\R1-2006995.zip) [16]

[102-e-NR-MRDC-CA-Dormancy-01] Email discussion/approval of the following from [R1-2006995](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_102\Docs\R1-2006995.zip) until 8/20; if necessary, endorse remaining TPs by 8/26 – Ravi (Ericsson)

* Topic 1-1: Processing time and HARQ timing for Case 2 dormancy indication – [3],[9],[11],[13],[14]
* Topic 1-2: Whether to have restriction that DCI format 1\_1/0\_1 with dormancy indication is only in first 3 symbols of a slot – [2], [3], [4], [8], [11], [13], [14]
* Topic 1-3: Spec clarification TPs in [9], [13] (TP1 and TP3 in [9]; TP2 and TP3 in [13])

# 2. Discussion

### 2.1 Topic 1-1

Please provide your input to below question Q1 on this topic, preferably by 08/18 (evening PST).

#### Question 1

Q1. Regarding processing time and HARQ timing for Case 2 dormancy indication, what is your preference among Options 1a,1b, 2a,2b,2c below?

* Option 1: Reuse SPS PDCCH release values (i.e., keep current text in section 10.3 of 38.213)

10.3 PDCCH monitoring indication and dormancy/non-dormancy behaviour for SCells

< text not relevant for the discussion omitted>

A UE is expected to provide HARQ-ACK information in response to a detection of a DCI format 1\_1 indicating SCell dormancy after  symbols from the last symbol of a PDCCH providing the DCI format 1\_1. If *processingType2Enabled* of *PDSCH-ServingCellConfig* is set to *enable* for the serving cell with the PDCCH providing the DCI format 1\_1, for ,  for , and  for ; otherwise, for , for , for , and for , where  is the smallest SCS configuration between the SCS configuration of the PDCCH providing the DCI format 1\_1 and the SCS configuration of a PUCCH with the HARQ-ACK information in response to the detection of the DCI format 1\_1.

* Option 2: Relax the processing time by 4 symbols compared to SPS PDCCH release values (Agree to TP below from [R1-2006663](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006663.zip))

10.3 PDCCH monitoring indication and dormancy/non-dormancy behaviour for SCells

< unchanged text omitted>

A UE is expected to provide HARQ-ACK information in response to a detection of a DCI format 1\_1 indicating SCell dormancy after  symbols from the last symbol of a PDCCH providing the DCI format 1\_1. If *processingType2Enabled* of *PDSCH-ServingCellConfig* is set to *enable* for the serving cell with the PDCCH providing the DCI format 1\_1, for ,  for , and  for ; otherwise, for , for , for , and for , where  is the smallest SCS configuration between the SCS configuration of the PDCCH providing the DCI format 1\_1 and the SCS configuration of a PUCCH with the HARQ-ACK information in response to the detection of the DCI format 1\_1.

* Option 3 : Below proposal from section 3.1 of [R1-2005626](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005626.zip)
  + If the UE detects a non-scheduling DCI format 1\_1 dormancy indication through a PDCCH reception ending in slot , the UE provides corresponding HARQ-ACK information in a PUCCH transmission within slot , where  is a number of slots and is indicated by the PDSCH-to-HARQ\_feedback timing indicator field in the DCI format, if present, or provided by dl-DataToUL-ACK, or by dl-DataToUL-ACKForDCIFormat1\_2 for DCI format 1\_2.  corresponds to the last slot of the PUCCH transmission that overlaps with the non-scheduling dormancy indication DCI format 1\_1. UE is not expected to have the HARQ-ACK feedback for non-scheduling dormancy indication DCI format 1\_1 before the allowed interruption time duration.
  + Discuss further TP (if any) to clarify this
* Option 4: Below proposal from section 2.1 of [R1-2006430](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006430.zip)
  + For the cases when interruptions on Pcell due to BWP change on Scell(s) are not allowed, if any, minimum HARQ-ACK processing requirement follows HARQ-ACK timeline (i.e. Nth symbol after last symbol of PDCCH).
  + For the case when interruptions on Pcell due to BWP change on Scell(s) are allowed, minimum HARQ-ACK processing requirement is the later among HARQ-ACK timeline (i.e. Nth symbol after last symbol of PDCCH) and first symbol of a slot where new BWP is activated.
  + Discuss further TP (if any) to clarify this
* Option 5: Below proposal from [R1-2006786](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006786.zip)
  + The UE is not expected to be scheduled with that requires the UE to transmit the HARQ-ACK for Case 2 PDCCH within the switch delay between dormancy and non-dormancy on SCells triggered by the Case 2 PDCCH. Adopt the proposed text proposal.

|  |
| --- |
| ---------------------------------------- Start of text proposal to Section 10.3 in TS 38.213 ---------------------------------------  >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> unchanged text omitted <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<  10.3 PDCCH monitoring indication and dormancy/non-dormancy behaviour for SCells  >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> unchanged text omitted <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<  A UE is not expected to be scheduled with that requires the UE to provide HARQ-ACK information in response to a detection of a DCI format 1\_1 indicating SCell dormancy within the transition time between dormancy and non-dormancy behaviors on SCells. .  >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> unchanged text omitted <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<  ---------------------------------------------------------- End of text proposal ---------------------------------------------------------- |

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

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Preferred Option(s)**  **If multiple, list most preferred first** | **Comments (Topic 1-1, Q1)** |
| Samsung | Option 1 |  |
| Intel | Option 1 or 2 |  |

### 2.2 Topic 1-2

Please provide your input to below question Q1 on this topic, preferably by 08/18 (evening PST).

#### Question 1

Q1. Regarding restricting DCI format 1\_1/0\_1 with dormancy indication to be only in first 3 symbols of a slot, what is your preference between Option 1,2,3, below?

* Option 1
  + DCI format 1\_1/0\_1 on primary cell with dormancy indication that indicates a BWP change between dormant and non-dormant BWPs of SCell(s) is restricted to be only in first 3 symbols of a slot
    - Discuss further TP (if any) to clarify this
* Option 2
  + For DCI format 1\_1/0\_1 on primary cell with dormancy indication that indicates a BWP change between dormant and non-dormant BWPs of SCell(s), there is no additional restriction that it should be only in first 3 symbols of a slot
    - Discuss further TP (if any) to clarify this
* Option 3
  + Restriction is introduced via UE capability signaling.
    - UE indicating the capability expects to receive DCI format 1\_1/0\_1 on primary cell with dormancy indication that indicates a BWP change between dormant and non-dormant BWPs of SCell(s) only in first 3 symbols of a slot
    - UE not indicating the capability can receive the DCI format 1\_1/0\_1 on primary cell with dormancy indication that indicates a BWP change between dormant and non-dormant BWPs of SCell(s) at any location in the slot where PDCCH reception is allowed.
    - Discuss further TP (if any) to clarify this

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

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Preferred Option**  **If multiple, list most preferred first** | **Comments (Topic 1-2, Q1)** |
| Samsung | Option 1 |  |
| Intel | Option 2 |  |

### 2.5 Topic 1-3

Please provide your input to below questions Q1, Q2, Q3 and Q4 on this topic, preferably by 08/18 (evening PST).

#### Question 1

Q1. Is it OK to agree to the TP1 for 38.213 Section 9.1.3.1 in section 2.1.1 of [R1-2006123](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006123.zip)?

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

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Yes/No** | **Comments (Topic 1-3, Q1)** |
| Samsung | Yes |  |
| Intel | No | The Rel-15 behavior is that, if DL BWP is changed, HARQ-ACK for all PDSCHs scheduled earlier than DL BWP change will be dropped. Therefore, DCI for SPS release must be |

#### Question 2

Q2. Is it OK to agree to the TP3 for 38.214 Section 6.2.1.3 in section 2.3.1 of [R1-2006123](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006123.zip)?

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

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Yes/No** | **Comments (Topic 1-3, Q2)** |
| Samsung | Yes |  |
| Intel | Yes |  |

#### Question 3

Q1. Is it OK to agree to the TP2 for 38.213 sub-clause 12 in section 2.3 of [R1-2006663](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006663.zip)?

Companies are requested to indicate their view about the above question in the Table below including views on any impact from Topic 1-2

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Yes/No** | **Comments (Topic 1-3, Q3)** |
| Samsung | Yes |  |
| Intel | Yes |  |

#### Question 4

Q1. Is it OK to agree to the TP3 for 38.213 sub-clause 12 in section 2.3 of [R1-2006663](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006663.zip)?

Companies are requested to indicate their view about the above question in the Table below including views on any impact from Topic 1-2

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Yes/No** | **Comments (Topic 1-3, Q4)** |
| Samsung | Yes |  |
| Intel | Yes |  |

# 3 Conclusions

TBU

# 4 References

1. [R1-2005359](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005359.zip) Remaining issues on Scell dormancy like behavior vivo
2. [R1-2005421](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005421.zip) Remaining Issues of SCell Dormancy and Cross-carrier Scheduling ZTE
3. [R1-2005626](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005626.zip) Remaining issues on Rel-16 carrier aggregation MediaTek Inc.
4. [R1-2005665](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005665.zip) PDCCH location for SCell dormancy CATT
5. [R1-2005788](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005788.zip) Remaining issues on CA Huawei, HiSilicon
6. [R1-2005856](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005856.zip) Remaining issues on MR-DC & eCA Intel Corporation
7. [R1-2005958](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005958.zip) TP on SCell dormancy for alignment NEC
8. [R1-2006035](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006035.zip) Remaining issues for Scell dormancy OPPO
9. [R1-2006123](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006123.zip) On maintenance of Scell dormancy and CCS with different SCSs Samsung
10. [R1-2006285](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006285.zip) Remaining issues on Multi-RAT Dual-Connectivity and Carrier Aggregation enhancements Spreadtrum Communications
11. [R1-2006430](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006430.zip) Remaining issues on Efficient CA design Nokia, Nokia Shanghai Bell
12. [R1-2006552](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006552.zip) Corrections for SCell Dormancy Sharp
13. [R1-2006663](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006663.zip) Maintenance for reduced latency Scell management for NR CA Ericsson
14. [R1-2006786](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006786.zip) Remaining issues on SCell dormancy Qualcomm Incorporated
15. [R1-2001419](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100_e/Docs/R1-2001419.zip) Text proposals from email discussion [100e-NR-LTE\_NR\_DC\_CA\_enh-ScellDormancy-01] Ericsson
16. [R1-2006995](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_102\Docs\R1-2006995.zip) Summary of efficient and low latency serving cell configuration/activation/setup, RAN1#102-e, August 2020.