**3GPP TSG RAN WG1 Meeting #106-e R1-21xxxx**

**E-meeting, August 16th – 27th, 2021**

**Agenda Item: 7.2.10**

**Source: Huawei, HiSilicon**

**Title: Moderator summary of [106-e-NR-MRDC-CA-03]**

**Document for: Discussion and Decision**

# Introduction

This contribution is feature lead summary on email discussion on corrections to 38.213 on SCell dormancy for power saving ([R1-2106514](file:///C:\Users\T00496~1\AppData\Local\Docs\R1-2106514.zip) and [R1-2106515](file:///C:\Users\T00496~1\AppData\Local\Docs\R1-2106515.zip)).

# Email discussion

## Change 1: Remove “one or both” in TS38.213 for SCell dormancy indication by DCI format 0\_1/1\_1

It was proposed in [1][2] that According to 38.331, if configured, DCI format 0\_1 and 1\_1 are configured simultaneously for a search space set. According to 38.212, if the higher layer parameter(s) *dormancyGroupWithinActiveTime* are configured, both DCI format 0\_1 and 1\_1 should contain the field of "SCell dormancy indication" which has at least 1 bit. Therefore, the current description of "if one or both of DCI format 0\_1 and DCI format 1\_1 include a SCell dormancy indication field" causes misunderstanding that it allows only one of the DCI format 0\_1 and DCI format 1\_1 includes a SCell dormancy indication field.

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| 38.21310.3 PDCCH monitoring indication and dormancy/non-dormancy behaviour for SCells ======skipped part=======  If a UE is provided search space sets to monitor PDCCH for detection of DCI format 0\_1 and DCI format 1\_1 and if ~~one or both of~~ DCI format 0\_1 and DCI format 1\_1 include a SCell dormancy indication field,  - the SCell dormancy indication field is a bitmap with size equal to a number of groups of configured SCells, provided by *dormancyGroupWithinActiveTime*,  - each bit of the bitmap corresponds to a group of configured SCells from the number of groups of configured Scells  - if the UE detects a DCI format 0\_1 or a DCI format 1\_1 that does not include a carrier indicator field, or detects a DCI format 0\_1 or DCI format 1\_1 that includes a carrier indicator field with value equal to 0  - a '0' value for a bit of the bitmap indicates an active DL BWP, provided by *dormantBWP-Id*, for the UE for each activated SCell in the corresponding group of configured SCells  - a '1' value for a bit of the bitmap indicates  - an active DL BWP, provided by *firstWithinActiveTimeBWP-Id*, for the UE for each activated SCell in the corresponding group of configured SCells, if a current active DL BWP is the dormant DL BWP  - a current active DL BWP, for the UE for each activated SCell in the corresponding group of configured SCells, if the current active DL BWP is not the dormant DL BWP  - the UE sets the active DL BWP to the indicated active DL BWP  ======skipped part======= |

Please provide your input/views on the proposed change#1:

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| Company | Comment |
| Intel | We are supportive to the changes |
| vivo | The current text may not be wrong; it just defines a case that cannot be configured by current RRC. Having saying that, we are also OK if the majority prefer to remove that text. |
| MTK | Support the change |
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## Change 2: Remove SCell dormaincy indiction with exception of “indication of SPS PDSCH release” since SCell dormancy indication is only supported for DCI format 1\_1 with CRC scrambled by C-RNTI or MCS-RNTI (no CS-RNTI).

It was proposed in [1][2] that considering a SPS PDSCH release indication is carried by a DCI with CRC scrambled by a CS-RNTI, and a PDCCH is considered as a Case 2 PDCCH only if the CRC of DCI format 1\_1 is scrambled by a RNTI which includes C-RNTI and MCS-C-RNTI, therefore, the description of “the UE considers the DCI format 1\_1 as not indicating a SPS PDSCH release” should be removed to avoid confusion on the understanding.

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| 38.21310.3 PDCCH monitoring indication and dormancy/non-dormancy behaviour for SCells ======skipped part=======  If a UE is provided search space sets to monitor PDCCH for detection of DCI format 1\_1, and if  - the CRC of DCI format 1\_1 is scrambled by a C-RNTI or a MCS-C-RNTI, and if  - a one-shot HARQ-ACK request field is not present or has a '0' value, and if  - the UE detects a DCI format 1\_1 on the primary cell that does not include a carrier indicator field, or detects a DCI format 1\_1 on the primary cell that includes a carrier indicator field with value equal to 0, and if  - *resourceAllocation* = *resourceAllocationType0* and all bits of the frequency domain resource assignment field in DCI format 1\_1 are equal to 0, or  - *resourceAllocation* = *resourceAllocationType1* and all bits of the frequency domain resource assignment field in DCI format 1\_1 are equal to 1, or  - *resourceAllocation = dynamicSwitch* and all bits of the frequency domain resource assignment field in DCI format 1\_1 are equal to 0 or 1  the UE considers the DCI format 1\_1 as indicating SCell dormancy, not scheduling a PDSCH reception ~~or indicating a SPS PDSCH release~~, and for transport block 1 interprets the sequence of fields of  ======skipped part======= |

Please provide your input/views on the proposed change#2:

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| Company | Comment |
| Intel | We are supportive to the changes |
| vivo | OK with the change. |
| MTK | Support the change |
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## Change#3: Corrections on configuration of dormant BWP needed for SCell dormancy

It was proposed in [1][2] that for a configured SCell, if the higher layer parameters dormantBWP-Id and/or firstWithinActiveTimeBWP-Id are not configured, when a Case 2 PDCCH is detected, the UE cannot execute the specified procedure, considering the UE does not have dormant BWP and first non-dormant BWP on the SCell. In order to correct this issue, it is proposed in [1][2] to restrict that the specified procedure only applies to the activated SCell(s) configured with the higher layer parameters *dormantBWP-Id* and *firstWithinActiveTimeBWP-Id*.

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| 38.21310.3 PDCCH monitoring indication and dormancy/non-dormancy behaviour for SCells ======skipped part=======  the UE considers the DCI format 1\_1 as indicating SCell dormancy, not scheduling a PDSCH reception or indicating a SPS PDSCH release, and for transport block 1 interprets the sequence of fields of  - modulation and coding scheme  - new data indicator  - redundancy version  and of  - HARQ process number  - antenna port(s)  - DMRS sequence initialization  as providing a bitmap to each configured SCell, in an ascending order of the SCell index, where, for an activated SCell configured with *dormantBWP-Id* and *firstWithinActiveTimeBWP-Id*,  - a '0' value for a bit of the bitmap indicates an active DL BWP, provided by *dormantBWP-Id*, for the UE for ~~a corresponding~~ the activated SCell  - a '1' value for a bit of the bitmap indicates  - an active DL BWP, provided by *firstWithinActiveTimeBWP-Id*, for the UE for ~~a corresponding~~ the activated SCell, if a current active DL BWP is the dormant DL BWP  - a current active DL BWP, for the UE for ~~a corresponding~~ the activated SCell, if the current active DL BWP is not the dormant DL BWP  - the UE sets the active DL BWP to the indicated active DL BWP  ======skipped part======= |

Please provide your input/views on the proposed change#3:

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| Company | Comment |
| Intel | We are supportive to the changes |
| vivo | The change seems not necessary. The text “provided by *dormantBWP-Id*” and “provided by *firstWithinActiveTimeBWP-Id*” in the sub bullets already cover the condition. If they are not configured, it is clearly an error case. |
| MTK | Fine with the change |
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# Conclusions

# References

1. R1-2106514 Discussion on corrections of Scell dormancy for power saving Huawei, HiSilicon
2. R1-2106515 Corrections of Scell dormancy for power saving Huawei, HiSilicon