**3GPP TSG RAN WG1 #118 R1-240xxxx**

**Maastricht, NL, August 19th – 23rd, 2024**

**Source: Moderator (CATT)**

**Title:** **Summary of definition transition time for BWP change triggered by DCI format 1\_1/0\_1 scheduling multi-PXSCHs**

**Agenda Item:** **7**

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

# Introduction

This contribution aims to collect company’s opinions on the draft CR[1][2]for clarifying that, in case of active DL/UL BWP change DCI is the multi-PDSCH/PUSCH scheduling DCI, the end of transition time of active DL BWP or UL BWP change is the beginning of the minimum K0/K2 in the active DL/UL change DCI.

Please consider entering the contact information below for better coordination for this discussion.

|  |  |  |
| --- | --- | --- |
| **Company** | **Contact(s)** | **Email address(es)** |
| CATT (Moderator) | Min Zhu | zhumin@catt.cn |
| Ericsson | Stephen Grant | stephen.grant@ericsson.com |
| Samsung | Kyungjun Choi | kyungj.choi@samsung.com |
| Nokia | Diana Zhussip | diana.zhussip@nokia.com |
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# Background

In Rel-15, it was agreed that a UE is to receive DL signals or transmit UL signals during the transition time of active DL or UL BWP change. And for DCI based active BWP change, the transition time of active DL or UL BWP switch is defined as the time duration from the end of the third symbol of the PDCCH slot until the beginning of a slot indicated by K0/K2 in the active DL/UL change DCI. The details are shown as follows:

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| **Agreements: (RAN1#92)*** A UE is not expected to receive DL signals or transmit UL signals during the transition time of active DL or UL BWP switch
	+ For DCI-based active BWP switch, from RAN1 perspective, the transition time of active DL or UL BWP switch is the time duration from the end of last OFDM symbol of the PDCCH carrying the active BWP switch DCI till the beginning of a slot indicated by K0 in the active DL BWP switch DCI or K2 in the active UL BWP switch DCI
	+ For timer-based active BWP switch, from RAN1 perspective, the transition time of active DL or UL BWP switch is the time duration from the beginning of the subframe (FR1) or from the beginning of the half-subframe (FR2) immediately after a BWP timer expires till the beginning of a slot UE is able to receive DL signals or transmit UL signals in the default DL BWP for paired spectrum or the default DL or UL BWP for unpaired spectrum
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And, the above agreement was captured in the current specification as follows:

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| TS 38.213If a UE detects a DCI format with a BWP indicator field that indicates an active DL BWP change for a cell, the UE is not required to receive or transmit in the cell during a time duration from the end of the third symbol of a slot where the UE receives the PDCCH that includes the DCI format in a scheduling cell until the beginning of a slot indicated by the slot offset value of the time domain resource assignment field in the DCI format.…If a UE detects a DCI format indicating an active UL BWP change for a cell, the UE is not required to receive or transmit in the cell during a time duration from the end of the third symbol of a slot where the UE receives the PDCCH that includes the DCI format in the scheduling cell until the beginning of a slot indicated by the slot offset value of the time domain resource assignment field in the DCI format. |

# Discussion

## 3.1 Questions

For up to 71GHz operation, the non-consecutive multiple PDSCHs/PUSCHs scheduling for a cell is supported, and more than one k0 or k2 values can be indicated by the time domain resource assignment field in a DCI format 1\_1/0\_1. When the active DL/UL BWP change DCI is the multi-PDSCH/PUSCH scheduling DCI, since there is more than one K0/K2 value in the DCI, the definition of the end of transition time is not clear.

**Question 1: Are you agree with the end of transition time of active UL/DL BWP change triggered by a multi PDSCH/PUSCH DCI is the minimum slot offset across all the slot offsets indicated in DCI format?**

Please provide your comments on the proposal to the table below

|  |  |
| --- | --- |
| Company | Comments |
| Ericsson | Yes, we agree. It makes sense to use the minimum slot offset. |
| Samsung | Agree.  |
| Nokia | Agree |
| Qualcomm | We agree with the intention, but with the current spec, we feel there is no choice other than the one with the minimum time gap.  |
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## 3.2 Proposed CR

Do you agree following text proposal to solve above issues?

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| 12 Bandwidth part operation < Unchanged parts are omitted >A UE does not expect to detect a DCI format with a BWP indicator field that indicates an active DL BWP or an active UL BWP change with the corresponding time domain resource assignment field providing a slot offset value for a PDSCH reception or PUSCH transmission that is smaller than a delay required by the UE for an active DL BWP change or UL BWP change, respectively [10, TS 38.133]. If a UE detects a DCI format with a BWP indicator field that indicates an active DL BWP change for a cell, the UE is not required to receive or transmit in the cell during a time duration from the end of the third symbol of a slot where the UE receives the PDCCH that includes the DCI format in a scheduling cell until the beginning of a slot indicated by the slot offset value of the time domain resource assignment field in the DCI format or by the minimum of slot offset values of the time domain resource assignment field in the DCI format scheduling more than one PDSCH for the cell..If a UE detects a DCI format with SCell dormancy indication that indicates an active DL BWP change for an Scell in slot *n* of primary cell, the UE is not required to receive or transmit in the SCell during a time duration specified in [10, TS 38.133].If a UE detects a DCI format indicating an active UL BWP change for a cell, the UE is not required to receive or transmit in the cell during a time duration from the end of the third symbol of a slot where the UE receives the PDCCH that includes the DCI format in the scheduling cell until the beginning of a slot indicated by the slot offset value of the time domain resource assignment field in the DCI format or by the minimum of slot offset values of the time domain resource assignment field in the DCI format scheduling more than one PUSCH for the cell.. |

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|  | **Company** |
| **Yes** | Yes (with editorial revision), Samsung |
| **No** |  |

Please provide your comments on the proposal to the table below

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| Company | Comments |
| Ericsson | Generally agree, except we think it would be more accurate to say:“… minimum of the slot offset values indicated by ~~of~~ the time domain resource assignment field in the DCI format …”since the *extendedK2-r17* is one of multiple parameters configured for each row of the RRC configured TDRA table, and the TDRA field of DCI indicates a row index of the table. |
| Samsung | Minor updates are needed. The minimum of slot offset values is not indicated by a DCI format scheduling multi-PxSCH. Instead, it is determined. So, we propose until the beginning of a slot indicated by the slot offset value of the time domain resource assignment field in the DCI format or determined by the minimum of slot offset values of the time domain resource assignment field in the DCI format scheduling more than one PDSCH for the cell. |
| Nokia | Agree with above comments |
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# Conclusion [TBD]

# References

1. R1-2406332, Draft CR on transition time of BWP change triggered by DCI format 1\_1/0\_1 scheduling multi-PXSCHs for Rel-17, CATT
2. R1-2406333, Draft CR on transition time of BWP change triggered by DCI format 1\_1/0\_1 scheduling multi-PXSCHs for Rel-18, CATT