**3GPP TSG- WG4 Meeting #95-e *R4-2008678***

**, 25 May – 5 June 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** | 0875 | **rev** | 1 | **Current version:** |  |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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|  |
| ***Title:***  | 38.133 CR on interruption requirements for BWP switch on multiple CCs |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_RRM\_enh-Core |  | ***Date:*** | 2020-06-02 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | Introduce interruption requirements for BWP switch on multiple CCs in Rel-16. |
|  |  |
| ***Summary of change:*** |  Add interruption requirement for BWP switch on multiple CCs |
|  |  |
| ***Consequences if not approved:*** | No interruption requirements for BWP switch on multiple CCs exist in 38.133. |
|  |  |
| ***Clauses affected:*** | 8.2.1.2.7, 8.2.2.2.5, 8.2.3.7, 8.2.4.2.5 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  |  |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

**<<Start of change 1>>**

##### 8.2.1.2.7 Interruptions due to Active BWP switching Requirement

The requirements for DCI-based and timer-based BWP switches in this clause apply to the case that the BWP switch is performed on a single CC or multiple CCs.

When the DCI-based, timer-based or RRC-based downlink BWP switch and/or uplink BWP switch occur on multiple CCs simultaneously or over partially overlapping period, the interruption requirements described in this section apply for each BWP switch.

When UE receives a DCI indicating UE to switch its active BWP involving changes in any of the parameters listed in Table 8.2.1.2.7-2, the UE is allowed to cause interruption of up to X slot to other active serving cells if the UE is not capable of per-FR gap, or if the BWP switching involves SCS changing. When the BWP switch imposes changes in any of the parameters listed in Table 8.2.1.2.7-2 and the UE is capable of per-FR gap, the UE is allowed to cause interruption of up to X slot to other active serving cells in the same frequency range wherein the UE is performing BWP switching. X is defined in Table 8.2.1.2.7-1. The starting time of interruption is only allowed within the BWP switching delay TBWPswitchDelay as defined in clause 8.6.2. Interruptions are not allowed during BWP switch involving other parameter change.

When a BWP timer *bwp-InactivityTimer* defined in TS 38.331 [2] expires, UE is allowed to cause interruption of up to X slot to other active serving cells due to switching its active BWP involving changes in any of the parameters listed in Table 8.2.1.2.7-2 if the UE is not capable of per-FR gap, or if the BWP switching involves SCS changing. When the BWP switch imposes changes in any of the parameters listed in Table 8.2.1.2.7-2 and the UE is capable of per-FR gap, the UE is allowed to cause interruption of up to X slot to other active serving cells in the same frequency range wherein the UE is performing BWP switching. X is defined in Table 8.2.1.2.7-1. The starting time of interruption is only allowed within the BWP switching delay TBWPswitchDelay as defined in clause 8.6.2. Interruptions are not allowed during BWP switch involving other parameter change.

When UE receives an RRC reconfiguration that only requests UE to switch its active BWP on one single CC, the UE is allowed to cause interruption of up to X slot to other active serving cells due to switching its active BWP involving changes in any of the parameters listed in Table 8.2.1.2.7-2 if the UE is not capable of per-FR gap, or if the BWP switching involves SCS changing. When the BWP switch imposes changes in any of the parameters listed in Table 8.2.1.2.7-2 and the UE is capable of per-FR gap, the UE is allowed to cause interruption of up to X slot to other active serving cells in the same frequency range wherein the UE is performing BWP switching. X is defined in Table 8.2.1.2.7-1. The interruption is only allowed within the delay TRRCprocessingDelay + TBWPswitchDelayRRC defined in clause 8.6.3.

Table 8.2.1.2.7-1: interruption length X

|  |  |  |
| --- | --- | --- |
|  | NR Slot length (ms) | Interruption length X (slotsNote 1) |
|
| 0 | 1 | 1 |
| 1 | 0.5 | 1 |
| 2 | 0.25 | 3 |
| 3 | 0.125 | 5 |
| Note1: If the BWP switch involves changing of SCS, the interruption due to BWP switch is determined by the smaller SCS between the SCS before BWP switch and the SCS after the BWP switch. |

Table 8.2.1.2.7-2: Parameters which cause interruption other than SCS

|  |  |
| --- | --- |
| Parameters | Comment |
| *locationAndBandwidth* | From TS 38.331 [2] |
| *nrofSRS-Ports* |
| *Editor’s note: More parameters can be added if identified*  |

**<<End of change 1>>**

**<<Start of change 2>>**

##### 8.2.2.2.5 Interruptions due to Active BWP switching Requirement

The requirements for DCI-based and timer-based BWP switches in this clause apply to the case that the BWP switch is performed on a single CC or multiple CCs.

When the DCI-based, timer-based or RRC-based downlink BWP switch and/or uplink BWP switch occur on multiple CCs simultaneously or over partially overlapping period, the interruption requirements described in this section apply for each BWP switch.

When UE receives a DCI indicating UE to switch its active BWP involving changes in any of the parameters listed in Table 8.2.2.2.5-2, the UE is allowed to cause interruption of up to X slot to other active serving cells if the UE is not capable of per-FR gap, or if the BWP switching involves SCS changing. When the BWP switch imposes changes in any of the parameters listed in Table 8.2.2.2.5-2 and the UE is capable of per-FR gap the UE is allowed to cause interruption of up to X slot to other active serving cells in the same frequency range wherein the UE is performing BWP switching. X is defined in Table 8.2.2.2.5-1. The starting time of interruption is only allowed within the BWP switching delay TBWPswitchDelay as defined in clause 8.6.2. Interruptions are not allowed during BWP switch involving other parameter change.

When a BWP timer *bwp-InactivityTimer* defined in TS 38.331 [2] expires, UE is allowed to cause interruption of up to X slot to other active serving cells due to switching its active BWP involving changes in any of the parameters listed in Table 8.2.2.2.5-2 if the UE is not capable of per-FR gap, or if the BWP switching involves SCS changing. When the BWP switch imposes changes in any of the parameters listed in Table 8.2.2.2.5-2 and the UE is capable of per-FR gap, the UE is allowed to cause interruption of up to X slot to other active serving cells in the same frequency range wherein the UE is performing BWP switching. X is defined in Table 8.2.2.2.5-1. The starting time of interruption is only allowed within the BWP switching delay TBWPswitchDelay as defined in clause 8.6.2. Interruptions are not allowed during BWP switch involving other parameter change.

When UE receives an RRC reconfiguration that only requests UE to switch its active BWP on one single CC, the UE is allowed to cause interruption of up to X slot to other active serving cells due to switching its active BWP involving changes in any of the parameters listed in Table 8.2.2.2.5-2 if the UE is not capable of per-FR gap, or if the BWP switching involves SCS changing. When the BWP switch imposes changes in any of the parameters listed in Table 8.2.2.2.5-2 and the UE is capable of per-FR gap, the UE is allowed to cause interruption of up to X slot to other active serving cells in the same frequency range wherein the UE is performing BWP switching. X is defined in Table 8.2.2.2.5-1.The interruption is only allowed within the delay TRRCprocessingDelay + TBWPswitchDelayRRC defined in clause 8.6.3.

Table 8.2.2.2.5-1: Interruption length X

|  |  |  |
| --- | --- | --- |
|  | NR Slot length (ms) | Interruption length X (slotsNote 1) |
|
| 0 | 1 | 1 |
| 1 | 0.5 | 1 |
| 2 | 0.25 | 3 |
| 3 | 0.125 | 5 |
| Note1: If the BWP switch involves changing of SCS, the interruption due to BWP switch is determined by the smaller SCS between the SCS before BWP switch and the SCS after the BWP switch |

Table 8.2.2.2.5-2: Parameters which cause interruption other than SCS

|  |  |
| --- | --- |
| Parameters | Comment |
| *locationAndBandwidth* | From TS 38.331 [2] |
| *nrofSRS-Ports* |
| *Editor’s note: More parameters can be added if identified* |

**<<End of change 2>>**

**<<Start of change 3>>**

##### 8.2.3.2.7 Interruptions due to Active BWP switching Requirement

The requirements for DCI-based and timer-based BWP switches in this clause apply to the case that the BWP switch is performed on a single CC or multiple CCs.

When the DCI-based, timer-based or RRC-based downlink BWP switch and/or uplink BWP switch occur on multiple CCs simultaneously or over partially overlapping period, the interruption requirements described in this section apply for each BWP switch.

When UE receives a DCI indicating the UE to switch its active BWP, or when a BWP timer *bwp-InactivityTimer* defined in TS 38.331 [2] expires, or when the UE receives an RRC command indicating the UE to switch its active BWP, the UE is allowed an interruption on PCell and any activated SCells as defined in clause 8.2.2.2.5.

**<<End of change 3>>**

**<<Start of change 4>>**

##### 8.2.4.2.5 Interruptions due to Active BWP switching Requirement

The requirements for DCI-based and timer-based BWP switches in this clause apply to the case that the BWP switch is performed on a single CC or multiple CCs.

When the DCI-based, timer-based or RRC-based downlink BWP switch and/or uplink BWP switch occur on multiple CCs simultaneously or over partially overlapping period, the interruption requirements described in this section apply for each BWP switch.

When UE receives a DCI indicating the UE to switch its active BWP, or when a BWP timer bwp-InactivityTimer defined in TS 38.331 [2] expires, or when the UE receives an RRC command indicating the UE to switch its active BWP, the UE is allowed to cause an interruption on any other serving cells as defined in clause 8.2.2.2.5.

**<<End of change 4>>**