**3GPP TSG-RAN WG4 Meeting #95-e *R4-2007785***

**Electronic Meeting, May 25 – June 5, 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **0817** | **rev** | **1** | **Current version:** | **16.3.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | CR 38.133 (8.3.4-5) Addition of interruption windows for Direct SCell activation | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_NR\_DC\_CA\_enh-Core | | | | |  | ***Date:*** | | | 2020-06-02 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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 can be 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:*** | | The specification text is currently missing information on interruption windows. It was agreed during RAN4#94-e-Bis that information on interruption windows would be added for Direct SCell activation once the same had been finalized for Rel-15 SCell activation. The latter was finalized during RAN4#94-e-Bis. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding specification of interruption windows. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Placement of interruptions remains unspecified, which may have a negative impact on the system performance. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.3.4, 8.3.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev 1: Modified description to align with revised R4-2007783. Modified starting point in response to comment during 1st round. | | | | | | | | |

Unchanged Sections Omitted

First Modification

8.3.4 Direct SCell Activation at SCell addition

The requirements in this clause apply for UE being configured in the RRC reconfiguration message [2] with one SCell for which the parameter *sCellState* is set to *activated*.

*Editor’s Note: FFS for the direct activation requriements for multiple SCells.*

The UE shall configure the SCell in activated state upon successful completion of the RRC reconfiguration procedure within the specified delay. Upon receiving the RRC reconfiguration message in subframe *n*, the UE shall be capable to transmit valid CSI report and apply actions for the directly activated SCell no later than in slot ,

Where:

*Ndirect* = *TRRC\_Process* + *T1* + *Tactivation\_time* + *TCSI\_Reporting*

*TRRC\_Process*: RRC procedure delay defined in clause 12 of TS 38.331 [2],

*T1*: Delay from slot until the transmission of RRCConnectionReconfigurationComplete message,

Note: *T1* is UE implementation dependent.

*Tactivation\_time* and *TCSI\_Reporting* are specified in clause 8.3.2.

In addition to CSI reporting defined above, UE shall also apply other actions related to the activation command specified in [7] for an SCell at the first opportunities for the corresponding actions once the SCell is activated.

The UE may be allowed to cause interruptions to serving cells on other component carriers during an interruption window of length *Ninterruption*, as specified in clause 8.2. The starting point of an interruption window on spCell or any activated SCell shall not occur before slot *n*+1+.

The ending point of the interruption window shall not occur after slot *n*+1+ + *Ninterruption*, where *TX* is:

- *TFirstSSB*, for any scenario where *Tactivation\_time*includes *TFirstSSB*;

- *TFirstSSB\_MAX*, for any scenario where *Tactivation\_time*includes *TFirstSSB\_MAX*;

- *Tuncertainty\_MAC +TFineTiming*, for any scenario where *Tactivation\_time*includes *TFineTiming*.

Starting from the slot until the UE has completed the direct SCell activation, the UE shall report CQI index = 0 (out of range) if the UE has available uplink resources to report CQI for the SCell.

8.3.5 Direct SCell Activation at Handover

The requirements in this clause apply for UE being configured in the RRC reconfiguration message [2] for handover with one SCell for which the parameter *sCellState* is set to *activated*.

*Editor’s Note: FFS for the direct activation requriements for multiple SCells.*

The UE shall configure the SCell in activated state upon successful completion of the RRC reconfiguration procedure within the specified delay. Upon receiving the RRC reconfiguration message in subframe *n*, the UE shall be capable to transmit valid CSI report and apply actions for the directly activated SCell no later than in slot ,

Where:

*Ndirect* = *TRRC\_process + Tinterrupt + T2 + T3* + *Tactivation\_time* + *TCSI\_Reporting*

*TRRC\_Process*: RRC procedure delay defined in clause 12 of TS 38.331 [2],

*Tinterrupt*: Interruption time during hanover as specified in clause 6.1.1,

*T2*: Delay from slot until UE has obtained a valid TA command for the target PCell,

*T3*: Delay for applying the received TA for upling transmission in the target PCell, and greater than or equal to *k+1* slot, where *k* is defined in clause 4.2 in TS 38.213,

*Tactivation\_time* and *TCSI\_Reporting* are specified in clause 8.3.2.

In addition to CSI reporting defined above, UE shall also apply other actions related to the activation command specified in [7] for an SCell at the first opportunities for the corresponding actions once the SCell is activated.

The UE may be allowed to cause interruptions to PCell during an interruption window of length *Ninterruption*, as specified in clause 8.2. The starting point of an interruption window on PCell shall not occur before slot *n*+1+. The end-point of the interruption window shall not occur after slot *n*+1++*Ninterruption*, where *TX* is:

- *TFirstSSB*, for any scenario where *Tactivation\_time*includes *TFirstSSB*;

- *TFirstSSB\_MAX*, for any scenario where *Tactivation\_time*includes *TFirstSSB\_MAX*;

- *Tuncertainty\_MAC +TFineTiming*, for any scenario where *Tactivation\_time*includes *TFineTiming*.

Starting from the slot and until the UE has completed the direct SCell activation, the UE shall report CQI index = 0 (out of range) if the UE has available uplink resources to report CQI for the SCell.

End of First Modification

Unchanged Sections Omitted