**3GPP TSG-RAN WG4 Meeting #95-e *R4-2008624***

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

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.133** | **CR** | **6875** | **rev** | **1** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Draft CR on DL interruption on LTE carriers at Tx switching between two uplink carriers | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_RF\_FR1 | | | | |  | ***Date:*** | | | 2020-05-10 |
|  |  | | | |  | |  | | |  |
| ***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 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:*** | | Draft CR [R4-2005420] was endorsed in RAN4#94e-bis meeting.  Based on the endorsed CR, the concrete interruption values are added.  -The UE capability name is added. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Draft CR [R4-2005420] was endorsed in RAN4#94e-bis meeting.  -Based on the endorsed CR, the concrete interruption values are added.  -the description of UE dynamic Tx switches between two uplink carriers is changed according to the RAN1 and RAN4 RF progress. | | | | | | | | |
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| ***Consequences if not approved:*** | | The specification is not completed. | | | | | | | | |
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| ***Clauses affected:*** | | 7.32 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

<Start of Change 1>

## 7.32 Interruptions with EN-DC

### 7.32.1 Introduction

This section contains the requirements related to the interruptions on PCell, and MCG SCell when

NR PSCell is added or released, or

transitions between active and non-active during NR PSCell DRX, or

transitions from NR PSCell non-DRX to DRX, or

SCell in either E-UTRA MCG or NR SCG is added or released, or

SCell in either E-UTRA MCG or NR SCG is activated or deactivated, or

measurements on SCC with deactivated SCell in either E-UTRA MCG or NR SCG, or

a downlink bandwidth part (BWP) and/or an uplink BWP is switched in NR PSCell or in any NR SCell, or

UE dynamic Tx switches between two uplink carriers.

The requirements shall apply for EN-DC.

This section contains interruption requirements when the victim cell is PCell or SCell belonging to MCG. Requirements for interruptions where victim cell is the NR PSCell or an NR SCell belonging to SCG are specified in [50].

For a UE which does not support per-FR measurement gaps, interruptions to the PCell or active MCG SCells may be caused by NR PSCell or NR SCells on any frequency range. For UE which support per-FR gaps, interruptions to the PCell or active MCG SCells may be caused by NR PSCell or NR SCells on FR1 only.

<End of Change 1>

<Start of Change 2>

#### 7.32.2.12 DL Interruptions at UE switching between two uplink carriers

The DL interruption requirements at dynamic switching between two uplink carriers specified in this sub-clause are applicable for an uplink band pair of an inter-band EN-DC configuration when the capability *uplinkTxSwitchingPeriod* is present, and is only applicable for uplink switching mechasim specified in sub-clause 6.1.0 of TS 38.38.214 [26], where E-UTRA UL carrier is capable of one transmit antenna connector and NR UL carrier is capable of two transmit antenna connectors, and the two uplink carriers are in different bands with different carrier frequencies.

When dynamic switching between two uplink carriers is conducted, UE is allowed to cause DL interruption of X OFDM symbols in E-UTRA downlink carrier(s) as indicated by *uplinkTxSwitching-DL-Interruption* [2], which fully or partially overlap with the UL switching period in NR carrier. The DL interruption lengths of X for EUTRA carrier(s) are defined in Table 7.32.2.12-1.

No DL interruption is allowed in the E-UTRA downlink carrier(s) which is not indicated by *uplinkTxSwitching-DL-Interruption*.

Table 7.32.2.12-1: DL interruption length on EUTRA carrier(s) in the unit of OFDM symbols (X) at UE switching between two uplink carriers

|  |  |
| --- | --- |
| Uplink Tx switching period Note1 | |
| 35us | 140us |
| 2 | 3 |
| Note 1: Uplink Tx switching period depends on UE capability uplinkTxSwitchingPeriod. | |

<End of Change 2>