**3GPP TSG-RAN WG4 Meeting #94-e-bis *R4-2008246***

**Electronic Meeting, 20 – 30 Apr., 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-3** | **CR** | 0290 | **rev** | **-** | **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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Draft CR to 38.101-3 on time masks for ULSUP in R16 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_RF\_FR1 | | | | |  | ***Date:*** | | | 2020-04-10 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | The existing timing mask requirement for ULSUP-TDM specified in Rel-15 applies for the case where there is no significant uplink timing difference between LTE and NR. According to the updated WID on RF requirements for NR frequency range 1 (FR1), the new timing mask requirement for ULSUP-TDM needs be specified.  The uplink timing difference can be used as the condition for time mask. But it should be less than the downlink timing difference between LTE and NR to ensure the uplink performance.  The figures in clause 6.3B.1 blurs. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Specify the side condition of uplink timing difference between LTE and NR, and allow 2.21/3 us relaxation as additional period for the time mask in Rel-16  Replace the figures in clasue 6.3B.1 with clear ones. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The time mask requirement cannot apply for the case where there is uplink timing misalignment between E-UTRA and NR. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3B.1.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS38.521-3 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

<< Start of change >>

### 6.3B.1 Output power dynamics for EN-DC with UL sharing from UE perspective

#### 6.3B.1.1 E-UTRA and NR switching time mask for TDM based UL sharing from UE perspective

The E-UTRA and NR switching time mask is applicable for non-simultaneous transmissions between E-UTRA and NR in TDM based UL sharing from the UE perspective in the same channel, which is shared by E-UTRA and NR.

The requirement applies on the condition that UE is capable of handling the uplink transmission timing difference between E-UTRA and NR which is less than or equal to 2.21 or 3μs.

For UEs reporting E-UTRA and NR switching time capability of type 1 with switching time < 0.5 us for TDM based UL sharing from UE perspective within FR1 time masks in Figure 6.3B.1.1-1 and Figure 6.3B.1.1-2 shall apply. For UEs reporting E-UTRA and NR switching time capability of type 2 with switching time < 20 us for TDM based UL sharing from UE perspective within FR1, time masks in Figure 6.3B.1.1-3 and Figure 6.3B.1.1-4 shall apply. The additional time for the transient period on the succeeding E-UTRA subframe or NR slot is caused by the uplink transmission timing difference, for which the maximum value is 2.21 or 3.

20µs

Transient period

E

-

UTRA

subframe

10+2.21/3µs

ON power

Requirement

NR slot/mini-slot

ON power

Requirement

Figure 6.3B.1.1-1: E-UTRA to NR switching time mask for type 1 for TDM based UL sharing from UE perspective within FR1

20+2.21/3µs

Transient period

E-UTRA subframe

NR slot/mini-slot

10µs

ON power

Requirement

ON power

Requirement

Figure 6.3B.1.1-2: NR to E-UTRA switching time mask for type 1 for TDM based UL sharing from UE perspective within FR1

20µs

Transient period

NR slot/mini-slot

10+2.21 or 3µs

ON power

requirement

ON power

requirement

OFF power requirement

Transient period

E-UTRA subframe

20µs

Figure 6.3B.1.1-3: E-UTRA to NR switching time mask for type 2 for TDM based UL sharing from UE perspective within FR1

20µs

Transient period

NR slot/mini

-

sl

ot

10µs

ON power

requirement

ON power

requirement

Transient period

OFF power requirement

20+2.21 or 3µs

NR slot/mini-slot

E-UTRA subframe

Figure 6.3B.1.1-4: NR to E-UTRA switching time mask for type 2 for TDM based UL sharing from UE perspective within FR1

<< End of change >>