3GPP TSG-RAN WG4 Meeting # 95-e R4-2009243

Electronic Meeting, 25 May – 5 June, 2020

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.133** | **CR** | **6869** | **rev** | **2** | **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:*** | CR on Introduction of requirements for preconfigured uplink resource transmission for NB-IoT | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NB\_IOTenh3-Core | | | | |  | ***Date:*** | | | 2020-05-08 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
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| ***Reason for change:*** | | RAN4 agreed to define UE measurement requirements for NRSRP change based TA validation. This is a new measruement requirement for UE in idle mode. | | | | | | | | |
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| ***Summary of change:*** | | Introduce UE measurement requirements for NRSRP change based TA validation. | | | | | | | | |
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| ***Consequences if not approved:*** | | NRSRP change based TA validation may not work due to outdated NRSRP measurement. | | | | | | | | |
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| ***Clauses affected:*** | | New section 4.6.3 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **x** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## **<<Start of Change 1>>**

### 4.6.3 Requirements for transmission using preconfigured uplink resources for UE category NB1

#### 4.6.3.1 Introduction

The requirements in this clause are applicable when the UE is configured with timing alignment (TA) validation using *pur-NRSRP-ChangeThreshold-r16* for transmitting in uplink using preconfigured uplink resources (PUR) as specified in [TS 36.331].

#### 4.6.3.2 Requirements on UE synchronization for transmission using PUR

The requirements in this clause are applicable for the UE in normal coverage or in enhanced coverage.

The UE is allowed to transmit using the preconfigured uplink resources provided that the UE is synchronized towards the serving cell prior to transmission. If the UE is not able to obtain the synchronization towards the serving cell then the UE shall drop the PUR transmission. The UE determines the PUR transmission occasion according to the received PUR configuration [TS 36.331].

#### 4.6.3.3 Requirements on TA validation for transmission using PUR

When only *NRSRP-ChangeThresh-NB-r16* [TS 36.331] is configured, the UE is allowed to transmit using PUR using the timing derived using the latest available value as specified in subclause 7.20 provided that

* the first NRSRP (NRSRP1) measurement and the second NRSRP (NRSRP2) measurements used in the TA validation are valid measurements and,
* timing alignment validation for transmission using PUR is valid according to the validation criteria in section 5.3.3.19 in [TS 36.331]

NRSRP1 is considered valid provided that the following condition is met when in normal coverage:

*(T1 – min(800 ms, N× DRX cycle)) ≤ T1’ ≤ (T1 + min(800 ms, N×DRX cycle))*

NRSRP1 is considered valid provided that the following condition is met when in enhanced coverage:

*(T1 – min(1600 ms, N× DRX cycle)) ≤ T1’ ≤ (T1 + min(1600 ms, N×DRX cycle))*

NRSRP2 is considered valid provided that the following condition is met when in normal coverage:

*T2 – min(800 ms, N×DRX cycle) ≤ T2’ ≤ T2*

NRSRP2 is considered valid provided that the following condition is met when in enhanced coverage:

*T2 – min(1600 ms, N×DRX cycle) ≤ T2’ ≤ T2*

If at least one of NRSRP1 and NRSRP2 is considered to be invalid based on the above conditions then the UE shall not validate the PUR using NRSRP1 and NRSRP2 and shall not transmit using PUR.

Where

- T1 is the time when the latest was obtained by the UE via Timing Advance Command MAC control element or NPDCCH for transmission on PUR,

- T1’ is the time when the UE has completed NRSRP1,

- T2 is the time when the UE performs TA validation defined in the present subclause for transmission using PUR,

- T2’ is the time when the UE has completed NRSRP2.

- N is the relaxation factor and is given by Table 4.6.2.1A-1 if the UE is not configured with eDRX\_IDLE cycle and by Table 4.6.2.1A-2 if the UE is configured with eDRX\_IDLE cycle in normal coverage.

- N is the relaxation factor and is given by Table 4.6.2.3A-1 if the UE is not configured with eDRX\_IDLE cycle and by Table 4.6.2.3A-2 if the UE is configured with eDRX\_IDLE cycle in enhanced coverage.

**<<End of Change 1>>**