**3GPP TSG-WG Meeting #111 *R4-241042***

**Fukuoka, Japan, May 20 – May 24, 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.133** | **CR** | **4425** | **rev** | **1** | **Current version:** | **17.13.0** |  |
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| *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:*** | (NR\_redcap-Core) CR on high priority search with eDRX (R17) | | | | | | | | | |
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| ***Source to WG:*** | Qualcomm, MediaTek inc., Nokia, Ericsson, Huawei | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_redcap-Core | | | | |  | ***Date:*** | | | 2024-05-21 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | High priority search with eDRX.  - Current cell re-selection procedure requires the UE to search high priority frequency layers every 60 seconds. When the configured eDRX is longer than 60s, the UE needs to wake up at least every 60s making the long eDRX configurations useless.  - Although eDRX was introduced for RedCap UEs, but it’s also applicable to non-RedCap UEs as well.  - This CR addresses the above issues based on the agreement captured in R4-2406425. | | | | | | | | |
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| ***Summary of change:*** | | Update the high priority search for IDLE and INACTIVE mode taking into account the eDRX cycle. | | | | | | | | |
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| ***Consequences if not approved:*** | | Long eDRX cycles (>60s) will not provide any power savings | | | | | | | | |
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| ***Clauses affected:*** | | 4.2.2.7, 5.1.2.7, 5.1B.2.7 | | | | | | | | |
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|  | | **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:*** | | R4-2408043 | | | | | | | | |

#### Start of change 1

4.2.2.7 General requirements

When configured with eDRX\_IDLE, the UE shall search every layer of higher priority at least every Thigher\_priority\_search, where Thigher\_priority\_search is defined as follows:

* Thigher\_priority\_search = max(60, 15\*eDRX\_IDLE cycle length) \* Nlayers seconds if eDRX\_IDLE cycle ≤ 10.24 s,
* Thigher\_priority\_search = max(60, ceil (15/NDRX-PTW)\*eDRX\_IDLE cycle length) \* Nlayers seconds if eDRX\_IDLE cycle > 10.24 s, where NDRX-PTW is the number of DRX cycles within a single PTW.

Otherwise if the UE is not configured with eDRX\_IDLE cycle, the UE shall search every layer of higher priority at least every Thigher\_priority\_search = (60 \* Nlayers) seconds.

Nlayers is the total number of higher priority NR and E-UTRA carrier frequencies broadcasted in system information. For a UE configured with early measurement reporting, while T331 is running, Nlayers is the combined total number of higher priority NR and E-UTRA carrier frequencies broadcasted in system information and carriers configured for idle mode CA measurements.

Note: combined total number means that if a carrier is a high priority carrier and additionally a carrier configured for idle mode CA measurements, it only counts as one carrier.

#### End of change 1

#### Start of change 2

#### 5.1.2.7 General requirements

When configured with eDRX\_INACTIVE, the UE shall search every layer of higher priority at least every Thigher\_priority\_search, where Thigher\_priority\_search is defined as follows:

* Thigher\_priority\_search = max(60, 15\*eDRX\_INACTIVE cycle length) \* Nlayers seconds if eDRX\_INACTIVE cycle ≤ 10.24 s,

Otherwise, if the UE is not configured with eDRX\_INACTIVE cycle, the UE shall search every layer of higher priority at least every Thigher\_priority\_search = (60 \* Nlayers) seconds.

Nlayers is the total number of higher priority NR and E-UTRA carrier frequencies broadcasted in system information. For a UE configured with early measurement reporting, while T331 is running, Nlayers is the combined total number of higher priority NR and E-UTRA carrier frequencies broadcasted in system information and carriers configured for idle mode CA measurements.

Note: combined total number means that if a carrier is a high priority carrier and additionally a carrier configured for idle mode CA measurements, it only counts as one carrier.

If UE is not configured to perform PRS measurement, or if UE is configured to perform PRS measurement and supports *parallelPRS-MeasRRC-Inactive-r17*, the requirements in this clause shall apply.

If UE is configured to perform PRS measurement but does not support *parallelPRS-MeasRRC-Inactive-r17*, the requirements in this clause shall apply with Nlayers being replaced with Nlayers + 1.

#### End of change 2

#### Start of change 3

#### 5.1B.2.7 General requirements

When the UE is not configured with eDRX\_INACTIVE, the requirements in sub-clause 4.2B.2.7 shall apply; and when the UE is configured with eDRX\_INACTIVE the requirements in sub-clause 4.2B.2.7 shall apply with eDRX\_IDLE cycle length being replaced with eDRX\_INACTIVE cycle length.

#### End of change 3