**3GPP TSG- RAN4 Meeting #** **108bis *R4-2315665***

**Xiamen, China, October 09 – October 13, 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **38.133** | **CR** | **-** | **rev** | **-** | **Current version:** | **18.3.0** |  |
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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:***  | CR on measurements of inter-RAT E-UTRAN cells for eRedCap UE |
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| ***Source to WG:*** | Huawei, HiSilicon |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_redcap\_enh-Core |  | ***Date:*** | 2023-9-4 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *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 canbe 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | Specify measurement requirements for inter-RAT E-UTRAN cells for eRedCap UE, based on the below agreements achieved in RAN4#108 meeting [R4-2314372].**When to measure when configured with both IDLE and INACTIVE eDRX configurations larger than 10.24s and when the PTWs are partially overlapping for neighbour cell measurements*** + RAN4 requirements are defined under an assumption that UE performs measurements within RAN PTW duration

**How to define requirements when configured with both IDLE and INACTIVE eDRX configurations larger than 10.24s and when the PTWs are partially overlapping for neighbour cell measurements*** + UE performs neighbour cell measurement based on the RAN configured DRX cycle within inactive PTW (i.e., RAN PTW)

**When to measure when configured with both IDLE and INACTIVE eDRX configurations larger than 10.24s and when the PTWs are non-overlapping (not-coinciding) for neighbour cell measurement*** + RAN4 requirements are defined under an assumption that UE performs measurements within RAN PTW duration

**How to define requirements when to measure when configured with both IDLE and INACTIVE eDRX configurations larger than 10.24s and when the PTWs are non-overlapping (not-conciding) for neighbour cell measurement*** + UE performs neighbour cell measurement based on the RAN configured DRX cycle within inactive PTW (i.e., RAN PTW)
 |
| ***s*** |  |
| ***Summary of change:*** | Specify measurement requirements for inter-RAT E-UTRAN cells for eRedCap UE when inactive eDRX larger than 10.24s is configured. |
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| ***Consequences if not approved:*** | No measurement requirements for inter-RAT E-UTRAN cells for eRedCap UE |
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| ***Clauses affected:*** | 5.1B.2.5 |
|  |  |
|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

<Start of Change 1>

#### 5.1B.2.5 Measurements of inter-RAT E-UTRAN cells

The requirements in clause 4.2B.2.5 shall apply when UE is not configured with eDRX\_IDLE. When UE is configured with eDRX\_IDLE, the requirements defined in section 4.2B.2.5 shall apply with Tdetect, EUTRAN\_RedCap, Tmeasure, EUTRAN \_RedCap and Tevaluate, EUTRAN \_RedCap defined in Table 5.1B.2.5-1.

Table 5.1B.2.5-1: Tdetect, EUTRAN\_RedCap, Tmeasure, EUTRAN \_RedCap and Tevaluate, EUTRAN \_RedCap for inactive Redcap UE configured with eDRX\_IDLE cycle, (Frequency range FR1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | DRX or eDRX INACTIVE cycle length [s] | Tdetect, EUTRAN\_RedCap [s] (number of DRX or eDRX INACTIVE cycles) | Tmeasure, EUTRAN \_RedCap [s] (number of DRX or eDRX INACTIVE cycles) | Tevaluate, EUTRAN \_RedCap [s] (number of DRX or eDRX INACTIVE cycles) |
|
| 2.56 ≤eDRX\_IDLE cycle length ≤ 10485.76 | 0.32 | 11.52 x 1.5 (36 x 1.5) | 1.28 x 1.5 (4 x 1.5) | 5.12 x 1.5 (16 x 1.5) |
| 0.64 | 17.92 (28) | 1.28 (2) | 5.12 (8) |
| 1.28 | 32 (25) | 1.28 (1) | 6.4 (5) |
| 2.56 | 58.88 (23) | 2.56 (1) | 7.68 (3) |
| 5.12 | 117.76 (23) | 5.12 (1) | 15.36 (3) |
| 10.24 | 235.52(23) | 10.24 (1) | 30.72 (3) |

When UE is configured for eDRX by [*ran-ExtendedPagingCycle-r18*] and *eDRX-AllowedInactive-r18* is signalled in SIB1, the UE operates in eDRX (eDRX cycle longer than 1024 radio frames) for RAN paging in RRC\_INACTIVE state. The requirements defined in section 4.2B.2.5 shall apply with Tdetect, EUTRAN\_RedCap, Tmeasure, EUTRAN \_RedCap and Tevaluate, EUTRAN \_RedCap defined in Table 5.1B.2.5-2.

Table 5.1B.2.5-2: Tdetect,EUTRAN\_RedCap, Tmeasure,EUTRAN\_RedCap, and Tevaluate,EUTRAN\_RedCap for UE configured with eDRX\_IDLE cycle

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| --- | --- | --- | --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | eDRX\_Inactive cycle length [s] | RAN DRX cycle length [s] | eDRX Inactive PTW length [s] (number of 1.28s periods) | Tdetect,EUTRAN\_RedCap [s] (number of RAN DRX cycles Note 3) | Tmeasure,EUTRAN\_RedCap [s] (number of RAN DRX cycles Note 3) | Tevaluate,E-UTRAN\_RedCap[s] (number of RAN DRX cycles Note 3) |
| 20.48 ≤ eDRX\_IDLE cycle length ≤10485.76 | 20.48 ≤ eDRX\_IDLE cycle length ≤10485.76 | 0.32 | ≥1.28 (1) |  (23) | 0.32 (1) | 0.64 (2) |
| 0.64 | ≥1.28 (1) | 0.64 (1) | 1.28 (2) |
| 1.28 | ≥2.56 (2) | 1.28 (1) | 2.56 (2) |
| 2.56 | ≥5.12 (4) | 2.56 (1) | 5.12 (2) |
| NOTE 1: RAN DRX cycle in this table is UE specific DRX value configured by RRC specified in [1].NOTE 2: The number of RAN DRX cycles in this table is given for the RAN DRX cycles within RAN configured PTWs.NOTE 3: eDRX Inactive PTW in this table is RAN configured PTW [1].NOTE 4: The eDRX\_IDLE cycle lengths are as specified in Section 10.5.5.32 of TS 24.008 [34].NOTE 5: The eDRX\_INACITVE cycle lengths are ran-ExtendedPagingCycle-r18 as specified in [2]NOTE 6: The lower bound of PTW length is derived based on $\left⌈\frac{Tevaluate,E-UTRAN\\_RedCap\*DRX\\_cycle}{1.28}\right⌉\*1.28$.NOTE 7: When eDRX=20.48s and DRX=0.32s, UE is allowed to perform cell evaluation within PTW in every 2 eDRX cycles. |

[If UE is configured with eDRX\_INACTIVE ≥ 20.48s, when the UE transitions between any two states when changing eDRX\_IDLE cycle length, eDRX\_INACTIVE cycle length, INACTIVE RAN DRX length or changing PTW configuration, the UE shall meet the transition requirement, which is the less stringent requirement of the two requirements corresponding to the first state and the second state, during the transition time interval which is the time corresponding to the transition requirement. After the transition time interval, the UE shall meet the requirement corresponding to the second state.]

<End of Change 1>