**3GPP TSG- Meeting # *R4-2408601***

**, Japan, -**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** | **4516** | **rev** | **1** | **Current version:** |  |  |
|  |
| *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) Correction to RedCap relaxed measurement requirements\_R17 |
|  |  |
| ***Source to WG:*** | , Mediatek, Ericsson, ZTE, Sanechips |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NR\_redcap-Core |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***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 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | 1. The name of relaxation factor for idle state intra-freq/inter-freq/inter-RAT reselection with stationary critera are not aligned:
	1. For intra-frequency case, “K3” is used,
	2. For inter-frequency case, “K4” is used in several tables while “K3” is used in other tables.,
	3. For inter-RAT case, “K5” is used in several tables while “K3” is used in other tables.

We suggest use the name “K3” in all reselection with stationary criteria requirements to avoid causing confusion.1. To fix tables with format issues
2. Relaxation factor K4 is used in inactive state relaxation measurement requirements with Edrx\_IDLE>10.24s tables. However, in Note of these tables K1 (for UE fulfilling the lowMobilityEvaluation criterion or fulfilling the cellEdgeEvaluation criterion) and K3 (for UE fulfilling the stationaryMobilityEvaluation criterion) are used. We suggest change K1 and K3 to K4 to avoid confusion.
3. Allign the terms in titles of inactive state relaxation measurement requirements with Edrx\_IDLE>10.24s tables.
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|  |  |
| ***Summary of change:*** | Issues mentioned above are solved. |
|  |  |
| ***Consequences if not approved:*** | Spec is incorrect. |
|  |  |
| ***Clauses affected:*** | 4.2B.2.10.2, 4.2B.2.11.2, 4.2B.2.11.9, 5.1B.2.9, 5.1B.2.10, 5.1B.2.11 |
|  |  |
|  | **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:*** |  |

<Start of Change 1>

##### 4.2B.2.10.2 Measurements for UE fulfilling stationary criterion

This clause contains requirements for measurements on inter-frequency NR cells provided that:

- UE is configured with *stationaryMobilityEvaluation* [2] criterion and UE has fulfilled that criterion, or

- UE is configured with both *stationaryMobilityEvaluation* [2] criterion and *cellEdgeEvaluationWhileStationary* [2] criterion and *combineRelaxedMeasCondition2* [2] is not configured, and UE has fulfilled only the *stationaryMobilityEvaluation* [2] criterion.

When Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ then the requirements defined in clause 4.2B.2.4 apply for this clause except that:

- For a UE not configured with eDRX\_IDLE, Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax are as specified in Table 4.2B.2.10.2-1 and Table 4.2B.2.10.2-2 for 1 Rx RedCap and 2 Rx RedCap respectively.

- For a UE configured with eDRX\_IDLE up-to 10.24s, Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax are as specified in Table 4.2B.2.10.2-3 and Table 4.2B.2.10.2-4 for 1 Rx RedCap and 2 Rx RedCap respectively.

- For a UE configured with eDRX\_IDLE greater than 10.24s, Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax are as specified in Table 4.2B.2.10.2-5 and Table 4.2B.2.10.2-6 for 1 Rx RedCap and 2 Rx RedCap respectively, provided eDRX\_IDLE cycle is ≤ [163.84] sec and evaluation/measurement time with relaxation on one carrier is not greater than single PTW window length.

When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ then the UE shall search for inter-frequency layers of higher priority at least every K2\*Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 240.

Table 4.2B.2.10.2-1: Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax for 1 Rx RedCap UE

|  |  |  |  |
| --- | --- | --- | --- |
| DRX cycle length [s] | Tdetect,NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles) | Tmeasure,NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles) | Tevaluate,NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles) |
| 0.32 | 11.52 x 1.5 x K3(36 x 1.5 x K3) | 1.28 x 1.5 x K3 (4 x 1.5 x K3) | 5.12 x 1.5 x K3 (16 x 1.5 x K3) |
| 0.64 | 17.92 x K3 (28 x K3) | 1.28x K3 (2 x K3) | 5.12 x K3 (8 x K3) |
| 1.28 | 32 x K3 (25 x K3) | 1.28x K3 (1 x K3) | 6.4 x K3 (5 x K3) |
| 2.56 | 58.88 x K3 (23 x K3) | 2.56 x K3 (1 x K3) | 7.68 x K3 (3 x K3) |
| Note 1: K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. |

Table 4.2B.2.10.2-2: Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax for 2 Rx RedCap UE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DRX cycle length [s] | Scaling Factor (N1) | Tdetect,NR\_Inter\_Relax [s] (number of DRX cycles) | Tmeasure,NR\_Inter\_Relax [s] (number of DRX cycles) | Tevaluate,NR\_Inter\_Relax [s] (number of DRX cycles) |
| FR1 | FR2Note1 |
| 0.32 | 1 | 8 | 11.52 x N1 x 1.5 x K3 (36 x N1 x 1.5 x K3) | 1.28 x N1 x 1.5 x K3 (4 x N1 x 1.5 x K4) | 5.12 x N1 x 1.5 x K3 (16 x N1 x 1.5 x K3) |
| 0.64 |  | 5 | 17.92x N1 x K3 (28 x N1 x K3) | 1.28 x N1 x K3 (2 x N1 x K3) | 5.12 x N1 x K3 (8 x N1 x K3) |
| 1.28 |  | 4 | 32 x N1 x K3 (25 x N1 x K3) | 1.28 x N1 x K3 (1 x N1 x K3) | 6.4 x N1 x K3 (5 x N1 x K3) |
| 2.56 |  | 3 | 58.88 x N1 x K3 (23 x N1 x K3) | 2.56 x N1 x K3 (1 x N1 x K3) | 7.68 x N1 x K3 (3 x N1 x K3) |
| Note 1: Applies for RedCap UE of all supporting power class.Note 2: K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. |

Table 4.2B.2.10.2-3: Tdetect, NR\_Inter \_RedCap\_Relax, Tmeasure,NR\_,NR\_Inter \_RedCap\_Relax and Tevaluate, NR\_Inter \_RedCap\_Relax for UE configured with eDRX\_IDLE cycle upto 10.24s (Frequency range FR1)

|  |  |  |  |
| --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | Tdetect, NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles) | Tmeasure, NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles) | Tevaluate, NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles) |
|
| 2.56 | 58.88 x K3 (23 x K3) | 2.56 x K3 (1 x K3) | 5.12 x K3 (2 x K3) |
| 5.12 | 117.76 x K3 (23 x K3) | 5.12 x K3 (1 x K3) | 10.24 x K3 (2 x K3) |
| 10.24 | 235.52 x K3 (23 x K3) | 10.24 x K3 (1 x K3) | 20.48 x K3 (2 x K3) |
| Note 1: M2 = 1.5 if SMTC periodicity of measured intra-frequency cell > 20 ms; otherwise M2=1. If different SMTC periodicities are configured for different cells, the SMTC periodicity in this note is the one used by the cell being identified. During PSS/SSS detection, the periodicity of the SMTC configured for the intra-frequency carrier is assumed, and if the actual SSB transmission periodicity is greater than the SMTC configured for the intra-frequency carrier, longer Tdetect, NR\_Inter\_Relax is expected.Note 2: K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. |

Table 4.2B.2.10.2-4: Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax for UE configured with eDRX\_IDLE cycle upto 10.24s (Frequency range FR2) f

|  |  |  |  |
| --- | --- | --- | --- |
| **eDRX\_IDLE cycle length [s]** | **Tdetect,NR\_Inter\_RedCap\_Relax [s] (number of eDRX cycles)** | **Tmeasure,NR\_Inter\_RedCap\_Relax [s] (number of eDRX cycles)** | **Tevaluate,NR\_Inter\_RedCap\_Relax [s] (number of eDRX cycles)** |
|
| 2.56 | 58.88 x N1 x K3 (23 x N1 x K3) | 2.56 x N1 x K3 (1 x N1 x K3) | 7.68 x N1 x K3 (3 x N1 x K3) |
| 5.12 | 117.76 x N1 x K3 (23 x N1 x K3) | 5.12 x N1 x K3 (1 x N1 x K3) | 10.24 x N1 x K3 (2 x N1 x K3) |
| 10.24 | 235.52 x N1 x K3 (23 x N1 x K3) | 10.24 x N1 x K3 (1 x N1 x K3) | 20.48 x N1 x K3 (2 x N1 x K3) |
| Note 1: K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. |

Table 4.2B.2.10.2-5: Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_ Inter \_RedCap\_Relax and Tevaluate,NR\_ Inter \_RedCap\_Relax for UE configured with eDRX\_IDLE cycle greater than 10.24s (Frequency range FR1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **eDRX\_IDLE cycle length [s]** | **DRX cycle length [s]** | **PTW length [s] (number of 1.28s periods)** | **Tdetect,NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles)** | **Tmeasure,NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles)** | **Tevaluate,NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles)** |
| 20.48 ≤ eDRX\_IDLE cycle length ≤[163.84] | 0.32 | ≥64] (5) | $$eDRX\\_cycle\\_length×\left⌈\frac{23}{PTW/DRX\\_cycle\\_length}\right⌉x K3$$(23 x K3) | 0.32 x M2 x K3 (1 x M2 x K3) | 0.64 x M2 x K3 (2 x M2 x K3) |
| 0.64 | ≥12.8 (10) | 0.64 x K3 (1 x K3) | 1.28 x K3 (2 x K3) |
| 1.28 | ≥15.36 (12) | 1.28 x K3 (1 x K3) | 2.56 x K3 (2 x K3) |
| 2.56 | ≥30.72 (4) | 2.56 x K3 (1 x K3) | 5.12 x K3 (2 x K3) |
| Note 1: The number of DRX cycles in this table corresponds to for the DRX cycles within PTWs.Note 2: The eDRX\_IDLE cycle lengths are as specified in Section 10.5.5.32 of TS 24.008 [34].Note 3: The lower bound of PTW length is derived based on $\left⌈\frac{Tevaluate,NR\\_Inter\\_RedCap\\_Relax\*DRX\\_cycle}{1.28}\right⌉\*1.28$.Note 4: K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the stationaryMobilityEvaluation [2] criterion. |

Table 4.2B.2.10.2-6: Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax for UE configured with eDRX\_IDLE cycle (Frequency range FR2) for eDRX\_IDLE cycle larger than 10.24 s

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | DRX cycle length [s] | PTW length [s] (number of 1.28s periods) | Scaling Factor (N1) Note1 | Tdetect,NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles or eDRX cycles Note 3) | Tmeasure,NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles or eDRX cycles Note 3) | Tevaluate,NR\_Inter\_RedCap\_Relax [s] (number of DRX cycles or eDRX cycles Note 3) |
| 20.48 ≤ eDRX\_IDLE cycle length ≤[163.84] | 0.32 | ≥30.72 (24) | 8 | K3 x $eDRX\\_cycle\\_length×\left⌈\frac{23×N1}{PTW/DRX\\_cycle\\_length}\right⌉$(23 x N1 x K3) | 0.32 x N1 x K3 (1 x N1 x K3) | 0.64 x N1 x K3 (2 x N1 x K3) |
| 0.64 | ≥38.4 (30) | 5 | 0.64 x N1 x K3 (1 x N1 x K3) | 1.28 x N1 x K3 (2 x N1 x K3) |
| 1.28 | 40.96 (32) | 4 | 1.28 x N1 x K3 (1 x N1 x K3) | 2.56 x N1 x K3 (2 x N1 x K3) |
| 2.56 | 40.96 (32) | 3 | 20.48(8) | 40.96(16) |
| Note 1: Applies for RedCap UE of all supporting FR2 power classes.Note 2: The number of DRX cycles in this table is given for the DRX cycles within PTWs.Note 3: The eDRX\_IDLE cycle lengths are as specified in Section 10.5.5.32 of TS 24.008 [34].Note 4: The lower bound of PTW length is derived based on $\left⌈\frac{Tevaluate,NR\\_Inter\\_RedCap\\_Relax\*DRX\\_cycle}{1.28}\right⌉\*1.28$.Note 5: For DRX cycle length is 0.32s, 0.64s and 2.56s, K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the stationaryMobilityEvaluation [2] criterion. For DRX cycle length is 1.28s, K3 = 4 is the measurement relaxation factor applicable for UE fulfilling the stationaryMobilityEvaluation [2] criterion. |

<End of Change 1>

<Start of Change 2>

##### 4.2B.2.11.2 Measurements for UE fulfilling stationary criterion

This clause contains requirements for measurements on inter-RAT E-UTRAN cells provided that:

- UE is configured with *stationaryMobilityEvaluation* [2] criterion and UE has fulfilled that criterion, or

- UE is configured with both *stationaryMobilityEvaluation* [2] criterion and *cellEdgeEvaluationWhileStationary* [2] criterion and *combineRelaxedMeasCondition2* [2] is not configured, and UE has fulfilled only the *stationaryMobilityEvaluation* [2] criterion

When Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ then the requirements defined in clause 4.2B.2.5 apply for this clause except that:

- For a UE not configured with eDRX\_IDLE, Tdetect,EUTRAN\_RedCap\_Relax, Tmeasure,EUTRAN\_RedCap\_Relax and Tevaluate,EUTRAN\_RedCap\_Relax are as specified in Table 4.2B.2.11.2-1.

- For a UE configured with eDRX\_IDLE up-to 10.24s, Tdetect,EUTRAN\_RedCap\_Relax, Tmeasure,EUTRAN\_RedCap\_Relax and Tevaluate,EUTRAN\_RedCap\_Relax are as specified in Table 4.2B.2.11.2-2.

- For a UE configured with eDRX\_IDLE greater than 10.24s, Tdetect,EUTRAN\_RedCap\_Relax, Tmeasure,EUTRAN\_RedCap\_Relax and Tevaluate,EUTRAN\_RedCap\_Relax are as specified in Table 4.2B.2.11.2-3, provided eDRX\_IDLE cycle is ≤ [163.84] sec and evaluation/measurement time with relaxation on one carrier is not greater than single PTW window length.

When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ then the UE shall search for E-UTRA inter-RAT frequency layers of higher priority at least every K2\*Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 240.

Table 4.2B.2.11.2-1: Tdetect,EUTRAN\_RedCap\_Relax, Tmeasure,EUTRAN\_RedCap\_Relax, and Tevaluate,EUTRAN\_RedCap\_Relax

|  |  |  |  |
| --- | --- | --- | --- |
| DRX cycle length [s] | Tdetect,EUTRAN\_Relax [s] (number of DRX cycles) | Tmeasure,EUTRAN\_Relax [s] (number of DRX cycles) | Tevaluate,EUTRAN\_Relax[s] (number of DRX cycles) |
| 0.32 | 11.52 x K3 (36 x K3) | 1.28 x K3 (4 x K3) | 5.12 x K3 (16 x K3) |
| 0.64 | 17.92 x K3 (28 x K3) | 1.28 x K3 (2 x K3) | 5.12 x K3 (8 x K3) |
| 1.28 | 32 x K3 (25 x K3) | 1.28 x K3 (1 x K3) | 6.4 x K3 (5 x K3) |
| 2.56 | 58.88 x K3 (23 x K3) | 2.56 x K3 (1 x K3) | 7.68 x K3 (3 x K3) |
| Note 1: K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. |

Table 4.2B.2.11.2-2: Tdetect,E-UTRAN \_RedCap\_Relax, Tmeasure, E-UTRAN \_RedCap\_Relax and Tevaluate, E-UTRAN \_RedCap\_Relax for UE configured with eDRX\_IDLE cycle upto 10.24s

|  |  |  |  |
| --- | --- | --- | --- |
| **eDRX\_IDLE cycle length [s]** | **TdetectE-UTRAN\_RedCap\_Relax [s] (number of DRX cycles)** | **Tmeasure, E-UTRAN\_RedCap\_Relax [s] (number of DRX cycles)** | **Tevaluate, E-UTRAN\_RedCap\_Relax [s] (number of DRX cycles)** |
|
|  |  |  |  |
| 2.56 | 58.88 x K3 (23 x K3) | 2.56 x K3 (1 x K3) | 7.68 x K3 (3 x K3) |
| 5.12 | 117.76 x K3 (23 x K3) | 5.12 x K3 (1 x K3) | 10.24 x K3 (2 x K3) |
| 10.24 | 235.52 x K3 (23 x K3) | 10.24 x K3 (1 x K3) | 20.48 x K3 (2 x K3) |
|  |  |  |  |
| Note 1: Void.Note 2: K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. |

Table 4.2B.2.11.2-3: Tdetect,E-UTRAN \_RedCap\_Relax, Tmeasure, E-UTRAN \_RedCap\_Relax and Tevaluate, E-UTRAN \_RedCap\_Relax for UE configured with eDRX\_IDLE cycle greater than 10.24s

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | DRX cycle length [s] | PTW length [s] (number of 1.28s periods) | Tdetect,EUTRAN\_RedCap\_Relax [s] (number of DRX cycles) | Tmeasure,EUTRAN\_RedCap\_Relax [s] (number of DRX cycles) | Tevaluate,E-UTRAN\_RedCap\_Relax[s] (number of DRX cycles) |
| 10.24 ≤ eDRX\_IDLE cycle length ≤ [163.84] | 0.32 | ≥6.4 (5) | K3 x  (23 x K3) | 0.32 x K3 (1 x K3) | 0.64 x K3 (2 x K3) |
| 0.64 | ≥12.8 (10) | 0.64 x K3 (1 x K3) | 1.28 x K3 (2 x K3) |
| 1.28 | ≥15.36 (12) | 1.28 x K3 (1 x K3) | 2.56 x K3 (2 x K3) |
| 2.56 | ≥30.72 (4) | 2.56 x K3 (1 x K3) | 5.12 x K3 (2 x K3) |
| NOTE 1: The number of DRX cycles in this table corresponds to the DRX cycles within PTWs.NOTE 2: The eDRX\_IDLE cycle lengths are as specified in Section 10.5.5.32 of TS 24.008 [34].NOTE 3: Void.NOTE 4: The lower bound of PTW length is derived based on $\left⌈\frac{Tevaluate,E-UTRAN\\_RedCap\\_Relax\*DRX\\_cycle}{1.28}\right⌉\*1.28$.NOTE 5: K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. |

<End of Change 2>

<Start of Change 3>

##### 4.2B.2.11.9 Measurements for UE fulfilling low mobility criterion

This clause contains requirements for measurements on inter-RAT E-UTRAN cells provided that:

- UE is configured with *lowMobilityEvalutation* [2] criterion and UE has fulfilled, or

- UE is configured with both *lowMobilityEvalutation* [2] criterion and *cellEdgeEvaluation* [2] criterion and *combineRelaxedMeasCondition* [2] is not configured, and UE has fulfilled only the *lowMobilityEvalutation* [2] criterion.

When Srxlev ≤ SnonIntraSearchP and Squal ≤ SnonIntraSearchQ then the requirements defined in clause 4.2B.2.5 apply for this clause except that:

- For a UE not configured with eDRX\_IDLE, Tdetect,EUTRAN\_RedCap\_Relax, Tmeasure,EUTRAN\_RedCap\_Relax and Tevaluate,EUTRAN\_RedCap\_Relax are as specified in Table 4.2B.2.11.9-1.

- For a UE configured with eDRX\_IDLE up-to 10.24s, Tdetect,EUTRAN\_RedCap\_Relax, Tmeasure,EUTRAN\_RedCap\_Relax and Tevaluate,EUTRAN\_RedCap\_Relax are as specified in Table 4.2B.2.11.9-2.

- For a UE configured with eDRX\_IDLE greater than 10.24s, Tdetect,EUTRAN\_RedCap\_Relax, Tmeasure,EUTRAN\_RedCap\_Relax and Tevaluate,EUTRAN\_RedCap\_Relax are as specified in Table 4.2B.2.11.9-3, provided eDRX\_IDLE cycle is ≤ [163.84] sec and evaluation/measurement time with relaxation on one carrier is not greater than single PTW window length.

When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and the UE is configured with *highPriorityMeasRelax* [2] then the UE shall search for E-UTRA inter-RAT frequency layers of higher priority at least every K2\*Thigher\_priority\_search seconds where Thigher\_priority\_search is described in clause 4.2B.2.7 and, K2 = 60. Otherwise, if the UE is not configured with *highPriorityMeasRelax* [2] then the UE shall search for E-UTRA inter-RAT frequency layers of higher priority at least every Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2B.2.7.

Table 4.2B.2.11.9-1: Tdetect,EUTRAN\_RedCap\_Relax, Tmeasure,EUTRAN\_RedCap\_Relax, and Tevaluate,EUTRAN\_RedCap\_Relax

|  |  |  |  |
| --- | --- | --- | --- |
| DRX cycle length [s] | Tdetect,EUTRAN\_RedCap\_Relax [s] (number of DRX cycles) | Tmeasure,EUTRAN\_RedCap\_Relax [s] (number of DRX cycles) | Tevaluate,EUTRAN\_RedCap\_Relax[s] (number of DRX cycles) |
| 0.32 | 11.52 x K1 (36 x K1) | 1.28 x K1 (4 x K1) | 5.12 x K1 (16 x K1) |
| 0.64 | 17.92 x K1 (28 x K1) | 1.28 x K1 (2 x K1) | 5.12 x K1 (8 x K1) |
| 1.28 | 32 x K1 (25 x K1) | 1.28 x K1 (1 x K1) | 6.4 x K1 (5 x K1) |
| 2.56 | 58.88 x K1 (23 x K1) | 2.56 (1 x K1) | 7.68 x K1 (3 x K1) |
| Note 1: K1 = 3 is the measurement relaxation factor applicable for UE fulfilling the *lowMobilityEvalutation* [2] criterion. |

Table 4.2B.2.11.9-2: Tdetect,EUTRAN\_Relax, Tmeasure, EUTRAN\_RedCap\_Relax and Tevaluate, EUTRAN\_RedCap\_Relax for UE configured with eDRX\_IDLE cycle upto 10.24s

|  |  |  |  |
| --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | Tdetect, EUTRAN\_RedCap\_Relax [s] (number of eDRX IDLE cycles) | Tmeasure, EUTRAN\_RedCap\_Relax [s] (number of eDRX IDLE cycles) | Tevaluate, EUTRAN\_RedCap\_Relax [s] (number of eDRX IDLE cycles) |
|  |
|  |  |  |  |
| 2.56 | 58.88 x K1 (23 x K1) | 2.56 (1 x K1) | 7.68 x K1 (3 x K1) |
| 5.12 | 117.76 x K1 (23 x K1) | 5.12 x K1 (1 x K1) | 10.24 x K1 (2 x K1) |
| 10.24 | 235.52 x K1 (23 x K1) | 10.24 x K1 (1 x K1) | 20.48 x K1 (2 x K1) |
| Note 1: K1 = 3 is the measurement relaxation factor applicable for UE fulfilling the *lowMobilityEvaluation* [2] criterion. |

Table 4.2B.2.11.9-3: Tdetect, EUTRAN\_RedCap\_Relax, Tmeasure, EUTRAN\_RedCap\_Relax and Tevaluate, EUTRAN\_RedCap\_Relax for UE configured with eDRX\_IDLE cycle greater than 10.24s (Frequency range FR1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **eDRX\_IDLE cycle length [s]** | **DRX cycle length [s]** | **PTW length [s] (number of 1.28s periods)** | **Tdetect,****EUTRAN\_RedCap\_Relax [s] (number of DRX cycles)** | **Tmeasure,EUTRAN\_RedCap\_Relax [s] (number of DRX cycles)** | **Tevaluate,EUTRAN\_RedCap\_Relax [s] (number of DRX cycles)** |
| 20.48 ≤ eDRX\_IDLE cycle length ≤[163.84] | 0.32 | ≥3.84 (3) | $$eDRX\\_cycle\\_length×\left⌈\frac{23}{PTW/DRX\\_cycle\\_length}\right⌉x K1$$(23 x K1) | 0.32 x K1 (1 x K1) | 0.64 x K1 (2 x K1) |
| 0.64 | ≥3.84 (3) | 0.64 x K1 (1 x K1) | 1.28 x K1 (2 x K1) |
| 1.28 | ≥7.68 (6) | 1.28 x K1 (1 x K1) | 2.56 x K1 (2 x K1) |
| 2.56 | ≥15.36 (12) | 2.56 x K1 (1 x K1) | 5.12 x K1 (2 x K1) |
| Note 1: The number of DRX cycles in this table corresponds to the DRX cycles within PTWs.Note 2: The eDRX\_IDLE cycle lengths are as specified in Section 10.5.5.32 of TS 24.008 [34].Note 3: The lower bound of PTW length is derived based on $\left⌈\frac{Tevaluate,EUTRAN\\_RedCap\\_Relax\*DRX\\_cycle}{1.28}\right⌉\*1.28$.Note 4: K1 = 3 is the measurement relaxation factor applicable for UE fulfilling the *lowMobilityEvaluation* [2] criterion. |

<End of Change 3>

<Start of Change 4>

#### 5.1B.2.9 Measurements of intra-frequency NR cells for UE configured with relaxed measurement criterion

The requirements in clause 4.2B.2.9 apply for UE configured with relaxed measurement criterion except when UE is configured with eDRX\_IDLE cycle greater than 10.24 s and UE has fulfilled stationary criterion or low mobility criterion or not-at-cell edge criterion.

If the UE is configured with eDRX\_IDLE cycle greater than 10.24 s in FR1 and FR2, and UE has fulfilled stationary criterion or low mobility criterion or not-at-cell edge criterion, then the requirements in Table 5.1B.2.9-1 and Table 5.1B.2.9-2 respectively apply provided that eDRX cycle is ≤ 10485.76 sec.

Table 5.1B.2.9-1: Tdetect,NR\_Intra\_RedCap\_Relax, Tmeasure,NR\_Intra\_RedCap\_Relax and Tevaluate,NR\_Intra\_RedCap\_Relax 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,NR\_Intra\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tmeasure,NR\_Intra\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tevaluate,NR\_Intra\_RedCap\_Relax [s] (number of DRX or INACTIVE eDRX cycles) |
|
| 20.48 ≤eDRX\_IDLE cycle length ≤10485.76 | 0.32 | 11.52 x M2 x K4 (36 x M2 x K4) | 1.28 x M2 x K4 (4 x M2 x K4) | 5.12 x M2 x K4 (16 x M2 x K4) |
| 0.64 | 17.92 x K4 (28 x K4) | 1.28 x K4 (2 x K4) | 5.12 x K4 (8 x K4) |
| 1.28 | 32 x K4 (25 x K4) | 1.28 x K4 (1 x K4) | 6.4 x K4 (5 x K4) |
| 2.56 | 58.88 x K4 (23 x K4) | 2.56 x K4 (1 x K4) | 7.68 x K4 (3 x K4) |
| 5.12 | 117.76 x K4 (23 x K4) | 5.12 x K4 (1 x K4) | 15.36 x K4 (3 x K4) |
| 10.24 | 235.52 x K4 (23 x K4) | 10.24 x K4 (1 x K4) | 30.72 x K4 (3 x K4) |
| Note1: M2 = 1.5 if SMTC periodicity of measured intra-frequency cell > 20 ms; otherwise M2=1.Note 2: K4 = 6 is the measurement relaxation factor applicable for UE fulfilling the stationaryMobilityEvaluation [2] criterion. K4 = 3 is the measurement relaxation factor applicable for UE fulfilling the lowMobilityEvaluation [2] criterion or fulfilling the cellEdgeEvaluation [2] criterion. |

Table 5.1B.2.9-2: Tdetect,NR\_Intra\_RedCap\_Relax, Tmeasure,NR\_Intra\_RedCap\_Relax and Tevaluate,NR\_Intra\_RedCap\_Relax for inactive Redcap UE configured with eDRX\_IDLE cycle, (Frequency range FR2)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | DRX or eDRX INACTIVE cycle length [s] | Scaling Factor (N1) | Tdetect,NR\_Intra\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tmeasure,NR\_Intra\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tevaluate,NR\_Intra\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) |
|
| 20.48 ≤eDRX\_IDLE cycle length ≤10485.76 | 0.32 | 8 | 11.52 x N1 x M2 x K4 (36 x N1 x M2 x K4) | 1.28 x N1 x M2 x K4 (4 x N1 x M2 x K4) | 5.12 x N1 x M2 x K4 (16 x N1 x M2 x K4) |
| 0.64 | 5 | 17.92x N1 x K4 (28 x N1 x K4) | 1.28 x N1 x K4 (2 x N1 x K4) | 5.12 x N1 x K4 (8 x N1 x K4) |
| 1.28 | 4 | 32 x N1 x K4 (25 x N1 x K4) | 1.28 x N1 x K4 (1 x N1 x K4) | 6.4 x N1 x K4 (5 x N1 x K4) |
| 2.56 | 3 | 58.88 x N1 x K4 (23 x N1 x K4) | 2.56 x N1 x K4 (1 x N1 x K4) | 7.68 x N1 x K4 (3 x N1 x K4) |
| 5.12 | 3 | 117.76 x N1 x K4 (23 x N1 x K4) | 5.12 x N1 x K4 (1 x N1 x K4) | 15.36 x N1 x K4 (3 x N1 x K4) |
| 10.24 | 3 | 235.52 x N1 x K4 (23 x N1 x K4) | 10.24 x N1 x K4 (1 x N1 x K4) | 30.72 x N1 x K4 (3 x N1 x K4) |
| Note1: M2 = 1.5 if SMTC periodicity of measured intra-frequency cell > 20 ms; otherwise M2=1.Note 2: K4 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. K4 = 3 is the measurement relaxation factor applicable for UE fulfilling the *lowMobilityEvaluation* [2] criterion or fulfilling the *cellEdgeEvaluation* [2] criterion. |

#### 5.1B.2.10 Measurements of inter-frequency NR cells for UE configured with relaxed measurement criterion

The requirements in clause 4.2B.2.10 apply for UE configured with relaxed measurement criterion except when UE is configured with eDRX\_IDLE cycle greater than 10.24 s and UE has fulfilled stationary criterion or low mobility criterion or not-at-cell edge criterion.

If the UE is configured with eDRX\_IDLE cycle greater than 10.24 s in FR1 and FR2, and UE has fulfilled stationary criterion or low mobility criterion or not-at-cell edge criterion, then the requirements in Table 5.1B.2.10-1 and Table 5.1B.2.10-2 respectively apply provided that eDRX cycle is ≤ 10485.76 sec.

Table 5.1B.2.10-1: Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax 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,NR\_Inter\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tmeasure,NR\_Inter\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tevaluate,NR\_Inter\_RedCap\_Relax [s] (number of DRX or INACTIVE eDRX cycles) |
|
| 20.48 ≤eDRX\_IDLE cycle length ≤10485.76 | 0.32 | 11.52 x M2 x K4 (36 x M2 x K4) | 1.28 x M2 x K4 (4 x M2 x K4) | 5.12 x M2 x K4 (16 x M2 x K4) |
| 0.64 | 17.92 x K4 (28 x K4) | 1.28 x K4 (2 x K4) | 5.12 x K4 (8 x K4) |
| 1.28 | 32 x K4 (25 x K4) | 1.28 x K4 (1 x K4) | 6.4 x K4 (5 x K4) |
| 2.56 | 58.88 x K4 (23 x K4) | 2.56 x K4 (1 x K4) | 7.68 x K4 (3 x K4) |
| 5.12 | 117.76 x K4 (23 x K4) | 5.12 x K4 (1 x K4) | 15.36 x K4 (3 x K4) |
| 10.24 | 235.52 x K4 (23 x K4) | 10.24 x K4 (1 x K4) | 30.72 x K4 (3 x K4) |
| Note1: M2 = 1.5 if SMTC periodicity of measured intra-frequency cell > 20 ms; otherwise M2=1.Note 2: K3 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. K1 = 3 is the measurement relaxation factor applicable for UE fulfilling the *lowMobilityEvaluation* [2] criterion or fulfilling the *cellEdgeEvaluation* [2] criterion. |

Table 5.1B.2.10-2: Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax for inactive Redcap UE configured with eDRX\_IDLE cycle, (Frequency range FR2)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | DRX or eDRX INACTIVE cycle length [s] | Scaling Factor (N1) | Tdetect,NR\_Inter\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tmeasure,NR\_Inter\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tevaluate,NR\_Inter\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) |
|
| 20.48 ≤eDRX\_IDLE cycle length ≤10485.76 | 0.32 | 8 | 11.52 x N1 x M2 x K4 (36 x N1 x M2 x K4) | 1.28 x N1 x M2 x K4 (4 x N1 x M2 x K4) | 5.12 x N1 x M2 x K4 (16 x N1 x M2 x K4) |
| 0.64 | 5 | 17.92x N1 x K4 (28 x N1 x K4) | 1.28 x N1 x K4 (2 x N1 x K4) | 5.12 x N1 x K4 (8 x N1 x K4) |
| 1.28 | 4 | 32 x N1 x K4 (25 x N1 x K4) | 1.28 x N1 x K4 (1 x N1 x K4) | 6.4 x N1 x K4 (5 x N1 x K4) |
| 2.56 | 3 | 58.88 x N1 x K4 (23 x N1 x K4) | 2.56 x N1 x K4 (1 x N1 x K4) | 7.68 x N1 x K4 (3 x N1 x K4) |
| 5.12 | 3 | 117.76 x N1 x K4 (23 x N1 x K4) | 5.12 x N1 x K4 (1 x N1 x K4) | 15.36 x N1 x K4 (3 x N1 x K4) |
| 10.24 | 3 | 235.52 x N1 x K4 (23 x N1 x K4) | 10.24 x N1 x K4 (1 x N1 x K4) | 30.72 x N1 x K4 (3 x N1 x K4) |
| Note1: M2 = 1.5 if SMTC periodicity of measured intra-frequency cell > 20 ms; otherwise M2=1.Note 2: K4 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. K4 = 3 is the measurement relaxation factor applicable for UE fulfilling the *lowMobilityEvaluation* [2] criterion or fulfilling the *cellEdgeEvaluation* [2] criterion. |

#### 5.1B.2.11 Measurements of inter-RAT E-UTRAN cells for UE configured with relaxed measurement criterion

The requirements in clause 4.2B.2.11 apply for UE configured with relaxed measurement criterion except when UE is configured with eDRX\_IDLE cycle greater than 10.24 s and UE has fulfilled stationary criterion or low mobility criterion or not-at-cell edge criterion.

If the UE is configured with eDRX\_IDLE cycle greater than 10.24 s in FR1 and FR2, and UE has fulfilled stationary criterion or low mobility criterion or not-at-cell edge criterion, then the requirements in Table 5.1B.2.11-1 apply provided that eDRX cycle is ≤ 10485.76 sec.

Table 5.1B.2.11-1: Tdetect,NR\_Inter\_RedCap\_Relax, Tmeasure,NR\_Inter\_RedCap\_Relax and Tevaluate,NR\_Inter\_RedCap\_Relax 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\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tmeasure, EUTRAN\_RedCap\_Relax [s] (number of DRX or eDRX INACTIVE cycles) | Tevaluate, EUTRAN\_RedCap\_Relax [s] (number of DRX or INACTIVE eDRX cycles) |
|
| 20.48 ≤eDRX\_IDLE cycle length ≤10485.76 | 0.32 | 11.52 x M2 x K4 (36 x M2 x K4) | 1.28 x M2 x K4 (4 x M2 x K4) | 5.12 x M2 x K4 (16 x M2 x K4) |
| 0.64 | 17.92 x K4 (28 x K4) | 1.28 x K4 (2 x K4) | 5.12 x K4 (8 x K4) |
| 1.28 | 32 x K4 (25 x K4) | 1.28 x K4 (1 x K4) | 6.4 x K4 (5 x K4) |
| 2.56 | 58.88 x K4 (23 x K4) | 2.56 x K4 (1 x K4) | 7.68 x K4 (3 x K4) |
| 5.12 | 117.76 x K4 (23 x K4) | 5.12 x K4 (1 x K4) | 15.36 x K4 (3 x K4) |
| 10.24 | 235.52 x K4 (23 x K4) | 10.24 x K4 (1 x K4) | 30.72 x K4 (3 x K4) |
| Note1: M2 = 1.5 if SMTC periodicity of measured intra-frequency cell > 20 ms; otherwise M2=1.Note 2: K4 = 6 is the measurement relaxation factor applicable for UE fulfilling the *stationaryMobilityEvaluation* [2] criterion. K4 = 3 is the measurement relaxation factor applicable for UE fulfilling the *lowMobilityEvaluation* [2] criterion or fulfilling the *cellEdgeEvaluation* [2] criterion. |

<End of Change 4>