**3GPP TSG-RAN WG4 Meeting #116 R4-2509678**

**Bengaluru, India, August 25th – 29th, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **draftCR** | **rev** | - | **Current version:** | **19.1.0** |  |
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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:*** | DraftCR on measurements of intra-frequency NR cells for UE with LP-WUR in IDLE and INACTIVE state | | | | | | | | | |
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| ***Source to WG:*** | OPPO | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_LPWUS-Core | | | | |  | ***Date:*** | | | 2025-08-13 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1. The relaxed MR intra-frequency neighbour cell measurement requirements for UE with LP-WUR in IDLE and INACTIVE state need to be defined. | | | | | | | | |
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| ***Summary of change:*** | | 1. Introduce the relaxed MR intra-frequency neighbour cell measurement requirements for UE with LP-WUR in IDLE and INACTIVE state. | | | | | | | | |
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| ***Consequences if not approved:*** | | The relaxed MR intra-frequency neighbour cell measurement requirements for UE with LP-WUR in IDLE and INACTIVE state are missing. | | | | | | | | |
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| ***Clauses affected:*** | | New 4.X.2.4, 5.X.2.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

# <Start of Change 1>

#### 4.X.4 Measurements of intra-frequency NR cells for UE with LP-WUR

For a UE with LP-WUR, the requirements in this clause apply when the relaxed measurement criterion defined in [5.2.4.x.2] in [1] is fulfilled.

The UE shall be able to identify new intra-frequency cells and perform SS-RSRP and SS-RSRQ measurements of the identified intra-frequency cells without an explicit intra-frequency neighbour list containing physical layer cell identities.

The UE shall be able to evaluate whether a newly detectable intra-frequency cell meets the reselection criteria defined in TS 38.304 [1] within KLP x Tdetect,NR\_Intrawhen that Treselection= 0, where KLP = 16. An intra frequency cell is considered to be detectable according to the conditions defined in Annex B.1.2 for a corresponding Band.

The UE shall measure SS-RSRP and SS-RSRQ at least every KLP x Tmeasure,NR\_Intra (see table 4.X.2.4-1, or table 4.X.2.4-2) for intra-frequency cells that are identified and measured according to the measurement rules.

The UE shall filter SS-RSRP and SS-RSRQ measurements of each measured intra-frequency cell using at least 2 measurements. Within the set of measurements used for the filtering, at least two measurements shall be spaced by at least KLP x Tmeasure,NR\_Intra/2.

The UE shall not consider an NR neighbour cell for cell reselection, if it is indicated as not allowed in the measurement control system information of the serving cell.

For an intra-frequency cell that has been already detected, but that has not been reselected to, the filtering shall be such that the UE shall be capable of evaluating that the intra-frequency cell has met reselection criterion defined in TS 38.304 [1] within KLP x Tevaluate,NR\_Intra when Treselection = 0as specified in table 4.X.2.4-1 or table 4.X.2.4-2, provided that:

when *rangeToBestCell* is not configured:

- the cell is at least 3 dB better ranked in FR1.

when *rangeToBestCell* is configured:

- the cell has the highest number of beams above the threshold *absThreshSS-BlocksConsolidation* among all detected cells whose cell-ranking criterion R value in TS 38.304 [1] is within *rangeToBestCell* of the cell-ranking criterion R value of the highest ranked cell.

- if there are multiple such cells, the cell has the highest rank among them.

- the cell is at least 3 dB better ranked in FR1 if the current serving cell is among them.

When evaluating cells for reselection, the SSB side conditions apply to both serving and non-serving intra-frequency cells.

If the Treselection timer has a non-zero value and an intra-frequency cell satisfies the reselection criteria defined in TS 38.304 [1], the UE shall evaluate this intra-frequency cell for the Treselection time. If this cell remains satisfied with the reselection criteria within this duration, then the UE shall reselect to this cell.

For UE not configured with eDRX\_IDLE cycle, Tdetect,NR\_Intra, Tmeasure,NR\_Intra and Tevaluate,NR\_Intra are specified in table 4.X.2.4-1.

For UE configured with eDRX\_IDLE cycle, Tdetect,NR\_Intra, Tmeasure,NR\_Intra and Tevaluate,NR\_Intra are specified in table 4.X.2.4-2 for FR1, where the requirements apply provided that the serving cell is configured with eDRX\_IDLE and the DRX cycle length is same in all PTWs during any of Tdetect,NR\_Intra, Tmeasure,NR\_Intra and Tevaluate,NR\_Intra when multiple PTWs are used.

Table 4.X.2.4-1: Tdetect,NR\_Intra, Tmeasure,NR\_Intra and Tevaluate,NR\_Intra

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DRX cycle length [s] | Scaling Factor (N1) | Tdetect,NR\_Intra [s] (number of DRX cycles) | Tmeasure,NR\_Intra [s] (number of DRX cycles) | Tevaluate,NR\_Intra  [s] (number of DRX cycles) |
|  | FR1 |  |  |  |
| 0.32 | 1 | 11.52 x N1 x M2 (36 x N1 x M2) | 1.28 x N1 x M2 (4 x N1 x M2) | 5.12 x N1 x M2 (16 x N1 x M2) |
| 0.64 | 17.92 x N1 (28 x N1) | 1.28 x N1 (2 x N1) | 5.12 x N1 (8 x N1) |
| 1.28 | 32 x N1 (25 x N1) | 1.28 x N1 (1 x N1) | 6.4 x N1 (5 x N1) |
| 2.56 | 58.88 x N1 (23 x N1) | 2.56 x N1 (1 x N1) | 7.68 x N1 (3 x N1) |
| 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\_intra is expected. | | | | |

Table 4.X.2.4-2: Tdetect,NR\_Intra, Tmeasure,NR\_Intra and Tevaluate,NR\_Intra for UE configured with eDRX\_IDLE cycle (Frequency range FR1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | DRX cycle length [s] | PTW length [s] (number of 1.28 s periods) | Tdetect,NR\_Intra [s] (number of DRX cycles or eDRX cycles Note 3) | Tmeasure,NR\_Intra [s] (number of DRX cycles or eDRX cycles Note 3) | Tevaluate,NR\_Intra [s] (number of DRX cycles or eDRX cycles Note 3) |
| 2.56 | - | - | 58.88 (23) | 2.56 (1) | 7.68 (3) |
| 5.12 | - | - | 117.76 (23) | 5.12 (1) | 10.24 (2) |
| 10.24 | - | - | 235.52 (23) | 10.24 (1) | 20.48 (2) |
| 20.48 ≤ eDRX\_IDLE cycle length ≤10485.76 | 0.32 | ≥1.28 (1) | (23) | 0.32 x M2 (1 x M2) | 0.64 x M2 (2 x M2) |
|  | 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: The number of DRX cycles in this table corresponds to the DRX cycles within PTWs, when PTW is configured.  NOTE 2: The eDRX\_IDLE cycle lengths are as specified in section 10.5.5.32 of TS 24.008 [42].  NOTE 3: Number of eDRX cycles when eDRX\_IDLE cycle length equals 2.56 s, 5.12 s and 10.24 s. Otherwise, number of DRX cycles.  NOTE 4: The lower bound of PTW length is derived based on .  NOTE 5: M2 = 2 if SMTC periodicity of measured intra-frequency cell > 20 ms; otherwise M2=1. | | | | | |

For any requirement in this section, when the UE transitions between any two states when being configured with eDRX\_IDLE, changing eDRX\_IDLE cycle 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>

# <Start of Change 2>

#### 5.X.2.4 Measurements of intra-frequency NR cells for UE with LP-WUR

The requirements in this clause apply when UE is configured with eDRX\_IDLE, otherwise the requirements in clause 4.X.2.4 shall apply.

When UE is configured with eDRX\_IDLE and UE is not configured with eDRX by *ran-ExtendedPagingCycleConfig-r18* or *eDRX-AllowedInactive-r18* is not signalled in SIB1, the requirements defined in section 4.X.2.4 shall apply with Tdetect,NR\_Intra, Tmeasure,NR\_Intra and Tevaluate,NR\_Intra defined in table 5.X.2.4-1.

When UE is configured with eDRX by *ran-ExtendedPagingCycleConfig-r18* and *eDRX-AllowedInactive-r18* is signalled in SIB1, the requirements defined in section 4.X.2.4 shall apply with Tdetect,NR\_Intra, Tmeasure,NR\_Intra and Tevaluate,NR\_Intra defined in table 5.X.2.4-2.

Table 5.X.2.4-1: Tdetect, NR\_Intra, Tmeasure, NR\_Intra and Tevaluate, NR\_Intra for UE configured with eDRX\_IDLE cycle, (Frequency range FR1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| eDRX\_IDLE cycle length [s] | DRX or eDRX INACTIVE cycle length [s] | Tdetect,NR\_Intra [s] (number of DRX or eDRX INACTIVE cycles) | Tmeasure,NR\_Intra [s] (number of DRX or eDRX INACTIVE cycles) | Tevaluate,NR\_Intra [s] (number of DRX or INACTIVE eDRX cycles) |
|
| 2.56 ≤eDRX\_IDLE cycle length ≤ 10485.76 | 0.32 | 11.52 x M2 (36 x M2) | 1.28 x M2 (4 x M2) | 5.12 x M2 (16 x M2) |
|  | 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) |
| NOTE1: M2 = 1.5 if SMTC periodicity of measured intra-frequency cell > 20 ms; otherwise M2=1. | | | | |

Table 5.X.2.4-2: Tdetect,NR\_Intra, Tmeasure,NR\_Intra and Tevaluate,NR\_Intra for UE configured with eDRX\_IDLE cycle and eDRX\_INACTIVE cycle, (Frequency range FR1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| eDRX\_IDLE cycle and eDRX INACTIVE cycle length [s] | RANDRX cycle length [s] | eDRX INACTIVEPTW length [s] (number of 1.28 s periods) | Tdetect,NR\_Intra [s] (number of RAN DRX cycles) | Tmeasure,NR\_Intra [s] (number of RAN DRX cycles Note 3) | Tevaluate,NR\_Intra [s] (number of RAN DRX cycles Note 3) |
| 20.48 ≤ eDRX\_IDLE cycle length ≤10485.76  20.48 ≤ eDRX\_INACTIVE cycle length ≤10485.76 | 0.32 | ≥[1.28] ([1]) | (23) | 0.32 x M2 (1 x M2) | 0.64 x M2 (2 x M2) |
| 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 DRX cycles within RAN configured PTWs.  NOTE 3: eDRX INACTIVE PTW in this table is RAN configured PTW.  NOTE 4: The eDRX\_IDLE cycle lengths are as specified in section 10.5.5.32 of TS 24.008 [42].  NOTE 5: The lower bound of PTW length is derived based on .  NOTE 6: M2 = 2 if SMTC periodicity of measured intra-frequency cell > 20 ms; otherwise M2=1. | | | | | |

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 2>