**3GPP TSG-RAN WG3 Meeting #111-eR3-211056**

**Online, 25 January – 4 February 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **23** | **CR** | 0530 | **rev** | 2 | **Current version:** | **16.4.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **x** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Correction on the DRX information delivery for RRC\_INACTIVE UE | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | , Qualcomm Incorporated, Ericsson, Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | | 5 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Based on the TS 36.304 specification, the *RAN paging cycle* and *Paging eDRX Information* are necessary to determine the paging DRX cycle(T) for UE in RRC\_INACTIVE when eDRX is configured, but based on current TS 38.423 specification, *RAN paging cycle* and *Paging eDRX Information* IEs are not included in the RAN PAGING message. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Include *RAN paging cycle* and *Paging eDRX Information* IEs in a new IE *RAN Paging eDRX Information* IE in the RAN PAGING message.  **Impact Analysis**  Impacted functionality:  The paging DRX cycle (T) determination for UE in RRC\_INACTIVE when eDRX is configured.  Inter-operability:  No inter-operability issue is found. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The paging DRX cycle(T) used in RAN node may be smaller than that used in UE outside PTW for UE in RRC\_INACTIVE state when eDRX is configured, which may lead RAN paging loss. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.2.5, 9.1.1.7, 9.2.3.xz(new), ASN.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Rev0: R3-210206 | | | | | | | | |

*Start of the first change*

8.2.5 RAN Paging

8.2.5.1 General

The purpose of the RAN Paging procedure is to enable the NG-RAN node1 to request paging of a UE in the NG-RAN node2.

The procedure uses non UE-associated signalling.

8.2.5.2 Successful operation

****

**Figure 8.2.5.2-1: RAN Paging: successful operation**

The RAN Paging procedure is triggered by the NG-RAN node1 by sending the RAN PAGING message to the NG-RAN node2,in which the necessary information e.g. UE RAN Paging Identity should be provided.

If the *Paging Priority* IE is included in the RAN PAGING message, the NG-RAN node2 may use it to prioritize paging.

If the *Assistance Data for RAN Paging* IE is included in the RAN PAGING message, the NG-RAN node2 may use it according to TS 38.300 [9].

If the *UE Radio Capability for Paging* IE is included in the RAN PAGING message, the NG-RAN node2 may use it to apply specific paging schemes.

If the *RAN Paging eDRX Information* IE is included in the PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 36.304 [34].

8.2.5.3 Unsuccessful Operation

Not applicable.

8.2.5.4 Abnormal Condition

Void.

*Next change*

9.1.1.7 RAN PAGING

This message is sent by the NG-RAN node1 to NG-RAN node2 to page a UE.

Direction: NG-RAN node1 → NG-RAN node2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| CHOICE *UE Identity Index Value* | M |  |  |  | YES | reject |
| *>Length-10* |  |  |  |  |  |  |
| >>Index Length-10 | M |  | BIT STRING (SIZE(10)) | Coded as specified in TS 38.304 [33] and TS 36.304 [34]. | – |  |
| UE RAN Paging Identity | M |  | 9.2.3.43 |  | YES | ignore |
| Paging DRX | M |  | 9.2.3.66 | Default paging cycle. | YES | ignore |
| RAN Paging Area | M |  | 9.2.3.38 |  | YES | reject |
| Paging Priority | O |  | 9.2.3.44 |  | YES | ignore |
| Assistance Data for RAN Paging | O |  | 9.2.3.41 |  | YES | ignore |
| UE Radio Capability for Paging | O |  | 9.2.3.91 |  | YES | ignore |
| RAN Paging eDRX Information | O |  | 9.2.3.xz |  | YES | ignore |

*Next change*

9.2.3.xz RAN Paging eDRX Information

This IE indicates the RAN Paging eDRX parameters as defined in TS 36.304 [34].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Paging eDRX Cycle | M |  | ENUMERATED (hfhalf, hf1, hf2, hf4, hf6, hf8, hf10, hf12, hf14, hf16, hf32, hf64, hf128, hf256, …) | TeDRX defined in TS 36.304 [34]. Unit: [number of hyperframes]. |
| Paging Time Window | O |  | ENUMERATED  (s1, s2, s3, s4, s5, s6, s7, s8, s9, s10, s11, s12, s13, s14, s15, s16, …) | Unit: [1.28 second]. |
| RAN Paging cycle | M |  | 9.2.3.66 | RAN paging cycle outside the Paging Time Window. |

*Next change*

9.3.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PDU definitions for XnAP.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

//SKIP THE UNRELATED PART//

PagingDRX,

RANPagingeDRXInformation,

PagingPriority,

//SKIP THE UNRELATED PART//

id-PagingDRX,

id-RANPagingeDRXInformation,

id-PagingPriority,

//SKIP THE UNRELATED PART//

*Next change*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- RAN PAGING

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

RANPaging ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{RANPaging-IEs}},

...

}

RANPaging-IEs XNAP-PROTOCOL-IES ::= {

{ ID id-UEIdentityIndexValue CRITICALITY reject TYPE UEIdentityIndexValue PRESENCE mandatory}|

{ ID id-UERANPagingIdentity CRITICALITY ignore TYPE UERANPagingIdentity PRESENCE mandatory}|

{ ID id-PagingDRX CRITICALITY ignore TYPE PagingDRX PRESENCE mandatory}|

{ ID id-RANPagingArea CRITICALITY reject TYPE RANPagingArea PRESENCE mandatory}|

{ ID id-PagingPriority CRITICALITY ignore TYPE PagingPriority PRESENCE optional }|

{ ID id-AssistanceDataForRANPaging CRITICALITY ignore TYPE AssistanceDataForRANPaging PRESENCE optional }|

{ ID id-UERadioCapabilityForPaging CRITICALITY ignore TYPE UERadioCapabilityForPaging PRESENCE optional }|

{ ID id-RANPagingeDRXInformation CRITICALITY ignore TYPE RANPagingeDRXInformation PRESENCE optional },

...

}

*Next change*

9.3.5 Information Element definitions

//SKIP THE UNRELATED PART//

-- P

PacketDelayBudget ::= INTEGER (0..1023, ...)

PacketErrorRate ::= SEQUENCE {

pER-Scalar PER-Scalar,

pER-Exponent PER-Exponent,

iE-Extensions ProtocolExtensionContainer { {PacketErrorRate-ExtIEs} } OPTIONAL,

...

}

PacketErrorRate-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

PedestrianUE ::= ENUMERATED {

authorized,

not-authorized,

...

}

RANPagingeDRXInformation ::= SEQUENCE {

paging-eDRX-Cycle Paging-eDRX-Cycle,

paging-Time-Window Paging-Time-Window OPTIONAL,

ranPagingCycle PagingDRX,

iE-Extensions ProtocolExtensionContainer { {RANPagingeDRXInformation-ExtIEs} } OPTIONAL,

...

}

RANPagingeDRXInformation-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

...

}

Paging-eDRX-Cycle ::= ENUMERATED {

hfhalf, hf1, hf2, hf4, hf6,

hf8, hf10, hf12, hf14, hf16,

hf32, hf64, hf128, hf256,

...

}

Paging-Time-Window ::= ENUMERATED {

s1, s2, s3, s4, s5,

s6, s7, s8, s9, s10,

s11, s12, s13, s14, s15, s16,

...

}

PER-Scalar ::= INTEGER (0..9, ...)

PER-Exponent ::= INTEGER (0..9, ...)

*Next change*

### 9.3.7 Constant definitions

//SKIP THE UNRELATED PART//

id-DL-scheduling-PDCCH-CCE-usage ProtocolIE-ID ::= 240

id-UL-scheduling-PDCCH-CCE-usage ProtocolIE-ID ::= 241

id-RANPagingeDRXInformation ProtocolIE-ID ::= 24x

END

-- ASN1STOP

*End of the change*