**3GPP TSG-RAN WG2 Meeting #123bis *R2-230xxxx***

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

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **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 | **x** | Core Network |  |

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| ***Title:*** | [Temporary CR] [RAN1 lead features] UE capabilities for Rel-18 eRedCap WI | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Intel Corporation | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_redcap\_enh-Core | | | | |  | ***Date:*** | | | 2023-10-xy |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***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 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) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Introduction of UE capabilities for Rel-18 eRedCap WI on RAN1 lead features | | | | | | | | |
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| ***Summary of change:*** | | To define the following UE capabilities for Rel-18 eRedCap WI on RAN1 lead features:   1. *supportOfERedCap-r18* for the support of eRedCap UE 2. *eRedCapNotReducedBB-BW-r18* for the support of eRedCap UE without reduced baseband bandwidth. | | | | | | | | |
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| ***Consequences if not approved:*** | | Rel-18 eRedCap WI is not complete. | | | | | | | | |
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| ***Clauses affected:*** | | 4.2.x.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **x** |  | Other core specifications | | | | TS/TR 38.331 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:*** | |  | | | | | | | | |

1. ***Modified section***

## 4.2 UE Capability Parameters

*\*\*\* OMITTED TEXT \*\*\**

### 4.2.x eRedCap Parameters

*\*\*\* OMITTED TEXT \*\*\**

#### 4.2.x.2 General parameters

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| --- | --- | --- | --- | --- |
| Definitions for parameters | Per | M | FDD-TDD DIFF | FR1-FR2 DIFF |
| ***supportOfERedCap-r18***  Indicates that the UE is an eRedCap UE with comprised of at least the following functional components:  The following functional compentents are the same as for *supportOfRedCap-r17*:  - Maximum FR1 bandwidth is 20 MHz;  - Support of early indication based on Msg1 for 4-step RACH;  - Separate initial UL BWP (NOTE-1):  - It includes the configuration(s) needed to perform random access  - Enabling/disabling of frequency hopping for common PUCCH resources  - Separate initial DL BWP (NOTE-1);  - It includes CSS/CORESET for random access  - For separate initial DL BWP used for paging, CD-SSB is included  - For separate initial DL BWP only used for RACH, SSB may or may not be included  - For separate initial DL BWP used in connected mode as BWP#0 configuration option 1 (as specified in Annex B2 in TS 38.331 [9]), CD-SSB is included  - 1 UE-specific RRC configured DL BWP per carrier;  - 1 UE-specific RRC configured UL BWP per carrier;  - UE-specific RRC-configured DL BWP with CD-SSB or NCD-SSB;  - NCD-SSB based measurements in RRC-configured DL BWP.  The following functional compentents are new compared to *supportOfRedCap-r17*:  - DL/UL peak data rate of 10 Mbps corresponding to *vLayers*·*Qm*·*f* = 3.2.  - If UE supporting this feature also indicates *eRedCapNotReducedBB-BW-r18,* this component is not applicable.  - Maximum number of PDSCH/PUSCH PRBs that can be scheduled/configured for unicast ~~per slot of~~ is 25 PRBs for 15 kHz SCS and is 12 PRBs for 30 kHz SCS.  - If UE supporting this feature also indicates *eRedCapNotReducedBB-BW-r18,* this component is not applicable.  - Relaxed RAR-PDSCH processing timeline of 1/0.5 ms for 15/30 kHz SCS when the RAR PDSCH and MsgB PDSCH (if supported) is larger than 25/12 PRBs for 15/30 kHz SCS.  - If UE supporting this feature also indicates *eRedCapNotReducedBB-BW-r18*, this component is only applicable during initial access and contention based random access.  - Network-configurable separate early indication in Msg1.  - Support of eRedCap early indication based on MsgA PUSCH, if UE indicates the support of *twoStepRACH-r16*, and Msg3.  - Maximum number of Msg4 PDSCH PRBs that can be [decoded/scheduled] and maximum number of Msg 3 PUSCH PRBs and Msg A PUSCH PRBs (if supported) that can be [transmitted/scheduled] is 25 PRBs for 15 kHz SCS and is 12 PRBs for 30 kHz SCS.  An UE supporting this feature shall set this field to *supported* but shall not indicate support of *supportOfRedCap-r17*.  NOTE-1: The Separate initial DL BWP is shared by RedCap UEs and eRedCap UEs when the access of both UEs is allowed and RedCap-specific initial BWP is configured. | UE | CY | No | FR1 only |
| ***eRedCapNotReducedBB-BW-r18***  Indicates that the UE is an eRedCap UE without reduced baseband bandwidth in FR1. DL/UL peak data rate of 10 Mbps corresponding to *vLayers*·*Qm*·*f* = 0.75 when *vLayers* = 1 and *vLayers*·*Qm*·*f* = 0.8 when *vLayers* = 2.  UE supporting this feature shall also indicate the support of *supportOfERedCap-r18*. | UE | No | No | FR1 only |

***End of the modified section***