**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 |
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| ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***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 |
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|  | **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***