**3GPP TSG- Meeting #157 *S5-246068***

**Hyderabad, India, 14 – 18 October 2024**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **0610** | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HELP***](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:*** | New performance measurements for Reduced Capability (RedCap) Device Early Identification | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Apple | | | | | | | | | |
| ***Source to TSG:*** | SA5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | | 2024-10-16 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Currently there is no performance measure defined in TS 28.552 quantifying the number of RACH attempts triggered by RedCap devices. In this CR, it is proposed to define the Number of RedCap PRACH Attempts as well as The Number of RedCap RACH Msg3 Attempts. One usage of this performance measurements is to help identiy where RedCap early identificaiton through RACH procedure happens. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding new performance measures capturing the number of RedCap PRACH attempts as well as the number of RedCap RACH Msg3 attempts. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Without these performance measurements, appriopriate per site uplink initial access capacity planning and dimensioning for base stations that serve many RedCap devices is not possible. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.1.1.X (new), 5.1.1.X.1 (new), 5.1.1.X.2 (new), A.X (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | S5-246068 is a revision of S5-245548 | | | | | | | | |

***Start of First change***

#### 5.1.1.X Reduced Capabiltiy Device Early Identification

***Start of next change***

##### 5.1.1.X.1 Number of RedCap PRACH Attempts

a) This measurement provides the number of PRACHs received via RedCap BWP configured on a given RedCap capable DU.

b) CC.

c) This measurement is obtained by counting the number of PRACH preambles received on a DU that supports an UL RedCap dedicated BWP (a DU that broadcasts the IE initialUplinkBWP-RedCap-r17 in SIB1, see clause 5.2.2.4.2 of TS 38.331 [20])

d) A single integer value.

e) RACH.PreambleRedCap.

f) NRCellDU.

g) Valid for packet switching.

h) 5GS.

i) One usage of this measurement is for performance assurance to support RACH optimization for appriopriate per site uplink initial access capacity planning and dimensioning for base stations that serve many RedCap devices (see TS 28.313 [30]).

***Start of next change***

##### 5.1.1.X.2 Number of RedCap RACH Msg3 Attempts

a) This measurement provides the number of UE RACH Msg3 transmissions using logical channel ID (LCID) 35 or 36 and received by a RedCap capable DU.

b) CC.

c) This measurement is obtained by counting the number of UE RACH Msg3 transmissions encapsulated in LCID 35 or 36 and received on a DU that support serving RedCap capable UEs (a DU that broadcasts the IE cellBarredRedCap1Rx-r17 and/or cellBarredRedCap2Rx-r17 set to notBarred in SIB1, see clause 5.2.2.4.2 of TS 38.331 [20])

d) A single integer value.

e) RACH.Msg3RedCap.

f) NRCellDU.

g) Valid for packet switching.

h) 5GS.

i) One usage of this measurement is for performance assurance to support RACH optimization for appriopriate per site uplink initial access capacity planning and dimensioning for base stations that serve many RedCap devices (see TS 28.313 [30]).

***Start of next change***

# A.122 Use case for UE assistance with release preference information related measurements

The above newly proposed performance measurements in clauses 5.1.1.42 (RRC.OtherConfig.UAI.releasePreferenceConfig) and 5.1.1.43 (RRC.UAI.releasePreference.) are needed for the assessment of the usefulness of the 3GPP defined connection mode power saving mechanisms (UE Assistance with release preference specifically). If implemented, these will measure the impact of the applying these mechanisms on the UE’s daily battery consumption.

# A.x Use case for the Number of RedCap PRACH Attempts and the Number of RedCap RACH Msg3 Attempts.

The number of RedCap PRACH attempts, and the number of RedCap RACH Msg3 Attempts are useful to help identiy where cases where RedCap early identificaiton through RACH procedure happens as well as to allow operators to make informed appriopriate per site uplink initial access capacity planning and dimensioning for base stations that serve many RedCap devices.

***End of change***