**3GPP TSG-RAN WG2 Meeting #127 *R2-240xxxx***

**Maastricht, The Netherlands, 19 – 23 August, 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.300** | **CR** | **0884** | **rev** | **1** | **Current version:** | **18.2.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Introduction of barring exemption for emergency call [EM\_Call\_Exemption] | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI18 | | | | |  | ***Date:*** | | | 2024-08-23 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The barring exemption for emergency call was introduced in R18, which is already implemented in TS 38.304 and TS 38.331. However, the feature is missing from TS 38.300. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the barring exemption for emergency call description in section 16.5.X, 16.13.3 and 16.22.2.  **Impact analysis**  Impacted functionality:  Emergency call, cell barring  Inter-operability:  If the UE is implemented according to this CR but the network is not, there is no inter-operability issue.  If the network is implemented according to this CR but the UE is not, there is no inter-operability issue. | | | | | | | | |
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| ***Consequences if not approved:*** | | The barring exemption for emergency call is not supported in TS 38.300. | | | | | | | | |
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| ***Clauses affected:*** | | 16.5.x, 16.13.3, 16.22.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

Start of Change

## 16.5 Emergency Services

### 16.5.1 Overview

NG-RAN provides support for Emergency Services either directly or through fallback mechanisms towards E-UTRA. The support of Emergency Services is broadcast in system information (see TS 38.331 [12]).

### 16.5.2 IMS Emergency call

An IMS Emergency call support indication is provided to inform the UE that emergency bearer services are supported. In normal service state the UE is informed if the PLMN supports emergency services through an Emergency Service Support indicator in the Attach and TAU procedures (see TS 23.501 [3]). In limited service state and for emergency services other than eCall over IMS, a UE is informed about if a cell supports emergency services over NG-RAN from a broadcast indication (*ims-EmergencySupport*). The broadcast indicator is set to "support" if any AMF in a non-shared environment or at least one of the PLMN's in a shared environment supports IMS emergency bearer services.

### 16.5.3 eCall over IMS

NG-RAN broadcast an indication to indicate support of eCall over IMS (*eCallOverIMS-Support*). UEs that are in limited service state need to consider both *eCallOverIMS-Support* and *ims-EmergencySupport* to determine if eCall over IMS is possible. UEs that are not in limited service state need to only consider *eCallOverIMS-Support* to determine if eCall over IMS is possible. The broadcast indicator is set to "support" if the PLMN in a non-shared environment, or all PLMNs in a shared environment, supports eCall over IMS.

### 16.5.4 Fallback

RAT fallback towards E-UTRA connected to 5GC is performed when NR does not support Emergency Services and System fallback towards E-UTRA connected to EPS is performed when 5GC does not support Emergency Services. Depending on factors such as CN interface availability, network configuration and radio conditions, the fallback procedure results in either CONNECTED state mobility (handover procedure) or IDLE state mobility (redirection) - see TS 23.501 [3] and TS 38.331 [12].

### 16.5.x Barring exemption for emergency call

The network may allow (e)RedCap UEs and 2Rx XR UEs to consider the cell as an acceptable cell and perform emergency calls in the cell, even if the cell would otherwise be considered as “barred”. ~~due to the cell barring indications in SIB1~~. This is enabled via the *barringExemptEmergencyCall* by the network (see TS 38.304 [10] and TS 38.331 [12]).

Next Change

## 16.13 Support of Reduced Capability (RedCap) and enhanced Reduced Capability (eRedCap) NR devices

### 16.13.1 Introduction

A RedCap UE has reduced capabilities with the intention to have lower complexity with respect to non-RedCap UEs. It is mandatory for a RedCap UE to support 20 MHz maximum UE channel bandwidth in FR1 and 100 MHz in FR2. An eRedCap UE has further reduced capabilities with the intention to have lower complexity with respect to RedCap UEs. It is mandatory for an eRedCap UE to support reduced DL/UL peak data rate of 10 Mbps, with or without reduced baseband bandwidth of 5 MHz for unicast PDSCH/PUSCH in FR1.

### 16.13.2 Capabilities

CA, MR-DC, DAPS, CPA, CPC and IAB related capabilities are not supported by (e)RedCap UEs, as defined together with other limitations in TS 38.306 [11]. It is up to the network to prevent (e)RedCap UEs from using radio capabilities not intended for (e)RedCap UEs.

### 16.13.3 Identification, access and camping restrictions

A RedCap UE can be identified by the network during Random Access procedure via MSG3/MSGA from a RedCap specific LCID(s) and optionally via MSG1/MSGA (PRACH occasion or PRACH preamble). An eRedCap UE can be identified by the network during Random Access procedure via MSG3/MSGA from an eRedCap specific LCID(s) and optionally via MSG1. For RedCap UE identification via MSG1/MSGA, RedCap specific Random Access configuration may be configured by the network. For eRedCap UE identification via MSG1, eRedCap specific Random Access configuration may be configured by the network. For MSG3/MSGA, an (e)RedCap UE is identified by the dedicated LCID(s) indicated for CCCH identification (CCCH or CCCH1) regardless whether (e)RedCap specific Random Access configuration is configured by the network.

(e)RedCap UEs with 1 Rx branch and 2 Rx branches can be allowed separately via system information. In addition, (e)RedCap UEs in Half-Duplex FDD mode can be allowed via system information. A RedCap specific IFRI can be provided in SIB1, when absent, RedCap UEs access is not allowed. An eRedCap specific IFRI can be provided in SIB1, when absent, eRedCap UEs access is not allowed. Information on which frequencies (e)RedCap UE access is allowed can be provided in system information. (e)RedCap UEs may be allowed by the network to treat a cell as an acceptable cell for the sake of allowing emergency calls, as described in clause 16.5.x, even if the cell would otherwise be considered as “barred” by such UEs due to the cell barring indications in SIB1.

An (e)RedCap UE with 1 Rx branch applies the associated offset for broadcasted cell specific RSRP thresholds for random access, SDT, cell edge condition and cell (re)selection criterion as specified in TS 38.133 [13].

NOTE: It is up to the E-UTRA network, if possible, to avoid handover attempts of an (e)RedCap UE to a target NR cell not supporting (e)RedCap as specified in TS 36.300 [2]. It is up to the (e)RedCap UE implementation, if possible, to recover from handover attempts to a target NR cell not supporting (e)RedCap.

Next Change

## 16.22 Support of 2Rx XR devices

### 16.22.1 Introduction

A 2Rx XR UE is an XR UE that is not (e)RedCap and is equipped with only two Rx antenna ports in frequency bands where 4Rx antenna ports are mandated as specified in TS 38.101-1 [18], in which it is also defined as two antenna port XR UE. No other relaxations in UE capabilities are allowed for 2Rx XR UEs.

2Rx XR UEs are intended only for use in XR devices that are worn on human head and whose constrained form factors have limited volume available for Rx chains.

### 16.22.2 Identification, access and camping restrictions

A UE capability indicates that the UE is a 2Rx XR UE. A 2Rx XR UE does not identify itself in Msg1 or Msg3 during RACH procedure.

Network indicates whether access to a cell by 2Rx XR UEs is barred via system information. For a cell that operates in a frequency band where 4Rx antenna ports are mandated, presence of this indication in its system information indicates that the cell does not allow 2Rx XR UEs. In addition, an IFRI specific for 2Rx XR UEs can be provided in system information. Information on which neighbor frequencies 2Rx XR UEs are allowed to access can be provided in system information. 2Rx XR UEs may be allowed by the network to treat a cell as an acceptable cell for the sake of allowing emergency calls, as described in clause 16.5.x, even if the cell would otherwise be considered as “barred” by such UEs due to the cell barring indications in SIB1.

NOTE: It is up to the E-UTRA network, if possible, to avoid handover attempts of a 2Rx XR UE to a target NR cell not allowing 2Rx XR UEs as specified in TS 36.300 [2]. It is up to UE implementation, if possible, to recover from handover attempts to a target NR cell not allowing 2Rx XR UEs.

End of Change