**3GPP TSG-RAN WG2 Meeting #109bis-e *R2-20xxxxx***

**Electronic, 20 Apr – 30 Apr 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **38.304** | **CR** | **Draft** | **rev** |  | **Current version:** | **16.0.0** |  |
|  |
| *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 eCall over IMS for NR |
|  |  |
| ***Source to WG:*** | Huawei, HiSilicon |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | TEI16 |  | ***Date:*** | 2020-04-23 |
|  |  |  |  |  |
| ***Category:*** | C |  | ***Release:*** | Rel-16 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | In SA LS SP-200287, SA would like RAN2 to support eCall over IMS for NR. |
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| ***Summary of change:*** | The following changes are made in order to support eCall over IMS for NR:1. Clarify that the NAS side supports restriction of location registration for a UE in eCall only mode;2. Add a definition of eCall only mode. |
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| ***Consequences if not approved:*** | The feature eCall over IMS for NR is not supported. |
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| ***Clauses affected:*** | 3.1, 4.2 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **Y** |  |  Other core specifications  | TS 38.300 CRxxxxTS 38.331 CRxxxx |
| ***affected:*** |  | **x** |  Test specifications |  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

## **3.1 Definitions**

For the purposes of the present document, the following terms and definitions apply:

**Acceptable Cell:** A cell that satisfies certain conditions as specified in 4.5.

**Available PLMN(s):** One or more PLMN(s) for which the UE has found at least one cell and read its PLMN identity(ies).

**Barred Cell**: A cell a UE is not allowed to camp on.

**Camped on a cell:** UE has completed the cell selection/reselection process and has chosen a cell. The UE monitors system information and (in most cases) paging information.

**Camped on any cell**: UE is in idle mode and has completed the cell selection/reselection process and has chosen a cell irrespective of PLMN identity.

**Commercial Mobile Alert System:** Public Warning System that delivers *Warning Notifications* provided by *Warning Notification Providers* to CMAS capable UEs.

**eCall Only Mode:** A UE configuration option that allows the UE to register at 5GC and register in IMS to perform only eCall Over IMS, and a non-emergencyIMS call for test and/or terminal reconfiguration services.

**EHPLMN:** Any of the PLMN entries contained in the Equivalent HPLMN list TS 23.122 [9].

**Equivalent PLMN list:** List of PLMNs considered as equivalent by the UE for cell selection, cell reselection, and handover according to the information provided by the NAS.

**Home PLMN:** A PLMN where the Mobile Country Code (MCC) and Mobile Network Code (MNC) of the PLMN identity are the same as the MCC and MNC of the IMSI.

**Process:** A local action in the UE invoked by an RRC procedure or an RRC\_IDLE or RRC\_INACTIVE state procedure.

**Radio Access Technology:** Type of technology used for radio access, for instance NR or E-UTRA.

**Registration Area**: (NAS) registration area is an area in which the UE may roam without a need to perform location registration, which is a NAS procedure.

**Registered PLMN:** This is the PLMN on which certain Location Registration outcomes have occurred, as specified in TS 23.122 [9].

**Reserved Cell**: A cell on which camping is not allowed, except for particular UEs, if so indicated in the system information.

**Selected PLMN:** This is the PLMN that has been selected by the NAS, either manually or automatically.

**Serving cell:** The cell on which the UE is camped.

**Strongest cell:** The cell on a particular frequency that is considered strongest according to the layer 1 cell search procedure (TS 38.213 [4], TS 38.215 [11]).

**Suitable Cell:** This is a cell on which a UE may camp. For NR cell, the criteria are defined in clause 4.5, for E-UTRA cell in TS 36.304 [7].

*<Next modification>*

## **4.2 Functional division between AS and NAS in RRC\_IDLE state and RRC\_INACTIVE state**

Table 4.2-1 presents the functional division between UE non-access stratum (NAS) and UE access stratum (AS) in RRC\_IDLE state and RRC\_INACTIVE states. The NAS part is specified in TS 23.122 [9] and the AS part in the present document.

Table 4.2-1: Functional division between AS and NAS in RRC\_IDLE state and RRC\_INACTIVE state

| RRC\_IDLE and RRC\_INACTIVE state Process | UE Non-Access Stratum | UE Access Stratum |
| --- | --- | --- |
| PLMN Selection  | Maintain a list of PLMNs in priority order according to TS 23.122 [9]. Select a PLMN using automatic or manual mode as specified in TS 23.122 [9] and request AS to select a cell belonging to this PLMN. For each PLMN, associated RAT(s) may be set.Evaluate reports of available PLMNs from AS for PLMN selection.Maintain a list of equivalent PLMN identities. | Search for available PLMNs.If associated RAT(s) is (are) set for the PLMN, search in this (these) RAT(s) and other RAT(s) for that PLMN as specified in TS 23.122 [9].Perform measurements to support PLMN selection.Synchronise to a broadcast channel to identify found PLMNs.Report available PLMNs with associated RAT(s) to NAS on request from NAS or autonomously. |
| Cell Selection | Control cell selection for example by indicating RAT(s) associated with the selected PLMN to be used initially in the search of a cell in the cell selection.Maintain a list of "Forbidden Tracking Areas" and provide the list to AS. | Perform measurements needed to support cell selection.Detect and synchronise to a broadcast channel. Receive and handle broadcast information. Forward NAS system information to NAS.Search for a suitable cell. The cells broadcast one or more 'PLMN identity' in the system information. Respond to NAS whether such cell is found or not.If associated RATs is (are) set for the PLMN, perform the search in this (these) RAT(s) and other RATs for that PLMN as specified in TS 23.122 [9].If a cell is found which satisfies cell selection criteria, camp on that cell. |
| Cell Reselection | Maintain a list of equivalent PLMN identities and provide the list to AS.Maintain a list of "Forbidden Tracking Areas" and provide the list to AS. | Perform measurements needed to support cell reselection.Detect and synchronise to a broadcast channel. Receive and handle broadcast information. Forward NAS system information to NAS.Change cell if a more suitable cell is found. |
| Location registration | Register the UE as active after power on.Register the UE's presence in a registration area, for instance regularly or when entering a new tracking area.Deregister UE when shutting down.Maintain a list of "Forbidden Tracking Areas".Control and restrict location registration for a UE in eCall Only Mode. | Report registration area information to NAS. |
| RAN Notification Area Update | Not applicable. | Register the UE's presence in a RAN-based notification area (RNA), periodically or when entering a new RNA. |