**3GPP TSG-SA2 Meeting #140E e-meeting *S2-2005189***

**19 August - 2 September, 2020, Electronic**

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| *CR-Form-v11.2* |
| **CHANGE REQUEST** |
|  |
|  | **23.501** | **CR** | **2412** | **rev** | **-** | **Current version:** | **16.5.1** |  |
| *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:***  | UE with an empty CAG list but CAG only is allowed to register the CAG cell  |
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| ***Source to WG:*** | China Mobile, Huawei, HiSilicon |
| ***Source to TSG:*** | SA WG2 |
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| ***Work item code:*** | Vertical\_LAN |  | ***Date:*** | 2020-08-05 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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:*** | There is a requirement that when a UE with CAG only indication, but the CAG list is empty, the UE is allowed to try to access the CAG cell if the CAG cell broadcast the information that the cell allows the UE to try the registration.The scenario is some verticals may utilize the UEs without configuring the CAG IDs, and the UEs can not be turned into manual selection mode. Because in some cases like the UEs have been embeded in the equipment e.g. robot arm or machine tool, the UEs can not be turned into manual selection mode.What’s more, in order to guarantee the CAG cells resource can only be used by vertical UEs , not the normal UEs, the limitation is set that the UE must confiured with CAG only indicaiton. |
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| ***Summary of change:*** | Correction that in some cases, the UE with CAG only indication but CAG list is empty, the UE is allowed to try to register the CAG cell. |
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| ***Consequences if not approved:*** | Some verticals requriement can not be satisfied. |
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| ***Clauses affected:*** | 5.30.3.2, 5.30.3.3 |
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|  | **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 ...  |
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| ***Other comments:*** |  |

## <<< Start of changes >>>

5.30.3.2 Identifiers

The following is required for identification:

- A CAG is identified by a CAG Identifier which is unique within the scope of a PLMN ID;

- A CAG cell broadcasts one or multiple CAG Identifiers per PLMN;

NOTE 1: It is assumed that a cell supports broadcasting a total of twelve CAG Identifiers. Further details are defined in TS 38.331 [28].

- A CAG cell may in addition broadcast a human-readable network name per CAG Identifier:

NOTE 2: The human-readable network name per CAG Identifier is only used for presentation to user when user requests a manual CAG selection.

- A CAG cell may in addition broadcast an indication that this cell can be used for UE trying registration when the UE’s Allowed CAG list does not contain the cell broadcasted CAG identifier(s) and a CAG-only indication.

5.30.3.3 UE configuration, subscription aspects and storage

To use CAG, the UE, that supports CAG as indicated as part of the UE 5GMM Core Network Capability, may be pre-configured or (re)configured with the following CAG information, included in the subscription as part of the Mobility Restrictions:

- an Allowed CAG list i.e. a list of CAG Identifiers the UE is allowed to access; and

- optionally, a CAG-only indication whether the UE is only allowed to access 5GS via CAG cells (see TS 38.304 [50] for how the UE identifies whether a cell is a CAG cell);

When the UE is configured with a CAG-only indication and the Allowed CAG list does not contain the cell broadcasted CAG identifier(s), the UE can try to register the CAG cell, only if the CAG cell broadcasts an indication that the UE registration is allowed.

The HPLMN may configure or re-configure a UE with the above CAG information using the UE Configuration Update procedure for access and mobility management related parameters described in TS 23.502 [3] in clause 4.2.4.2.,

The above CAG information is provided by the HPLMN on a per PLMN basis. In a PLMN the UE shall only consider the CAG information provided for this PLMN.

When the subscribed CAG information changes, UDM sets a CAG information Subscription Change Indication and sends it to the AMF. The AMF shall provide the UE with the CAG information when the UDM indicates that the CAG information within the Access and Mobility Subscription data has been changed. When AMF receives the indication from the UDM that the CAG information within the Access and Mobility Subscription has changed, the AMF uses the CAG information received from the UDM to update the UE. Once the AMF updates the UE and obtains an acknowledgment from the UE, the AMF informs the UDM that the update was successful and the UDM clears the CAG information Subscription Change Indication flag.

The AMF may update the UE using either the UE Configuration Update procedure after registration procedure is completed, or by including the new CAG information in the Registration Accept or in the Registration Reject.

When the UE is roaming and the Serving PLMN provides CAG information, the UE shall update only the CAG information provided for the Serving PLMN while the stored CAG information for other PLMNs are not updated. When the UE is not roaming and the HPLMN provides CAG information, the UE shall update the CAG information stored in the UE with the received CAG information for all the PLMNs.

The UE shall store the latest available CAG information for every PLMN for which it is provided and keep it stored when the UE is de-registered or switched off, as described in TS 24.501 [47].

NOTE: CAG information has no implication on whether and how the UE accesses 5GS over non-3GPP access.

## <<< End of changes >>>