**3GPP TSG-CT WG1 Meeting #128-eC1-211240**

**Electronic meeting, 25 February – 5 March 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **24.501** | **CR** | **3025** | **rev** | **2** | **Current version:** | **17.1.0** |  |
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| *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 |  | Core Network |  |

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| ***Title:***  | Exception data in restricted service area for a UE in connected mode |
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| ***Source to WG:*** | Samsung, Convida Wireless, Huawei, HiSilicon, InterDigital, ZTE, Nokia, Nokia Shanghai Bell, Intel, BlackBerry UK Ltd., SHARP, vivo, Vodafone |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5GProtoc17, 5G\_CIoT |  | ***Date:*** | 2021-02-15 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *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)* |
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| ***Reason for change:*** | During discussions related to LS [C1-207061](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_127e/Docs/C1-207061.zip) in meeting #127e, there was a common understanding (see related emails) that the UE in connected mode should be allowed to send exception data in a restricted service area, noting that the specificaiton allows all other data types to be sent e.g. SMS, etc.TS 24.501 states:iv) shall not perform the NAS transport procedure except for the sending:- SMS;- an LPP message;- a location services message;- an SOR transparent container;- a UE policy container;- a UE parameters update transparent container; or- a CIoT user data container.Although “CIoT user data container” is listed, this does not clearly describe if exception data can be sent. This document makes that clarification. |
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| ***Summary of change:*** | For a UE in connected mode in a restricted service area, add a note to clarify that CIoT user data container can contain data that is not for exception report, or data that is for exception report if allowed for a UE. |
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| ***Consequences if not approved:*** | The UE may not send exception data while in connected mode in a restricted service area even though the UE is allowed to do so. As such different UEs may act differently w.r.t exception data in this case. |
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| ***Clauses affected:*** | 5.3.5.2 |
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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 ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*\*\*\* START CHANGE \*\*\*\*\*\*

#### 5.3.5.2 3GPP access service area restrictions

The service area restrictions consist of tracking areas forming either an allowed area, or a non-allowed area. The tracking areas belong to either the registered PLMN or its equivalent PLMNs in the registration area. The allowed area can contain up to 16 tracking areas or include all tracking areas in the registered PLMN and its equivalent PLMN(s) in the registration area. The non-allowed area can contain up to 16 tracking areas. The network conveys the service area restrictions to the UE by including either an allowed area, or a non-allowed area, but not both, in the Service area list IE of a REGISTRATION ACCEPT message or a CONFIGURATION UPDATE COMMAND message.

If the network does not convey the service area restrictions to the UE in the Service area list IE of a REGISTRATION ACCEPT message, the UE shall treat all tracking areas in the registered PLMN and its equivalent PLMN(s) in the registration area as allowed area and delete the stored list of "allowed tracking areas" or the stored list of "non-allowed tracking areas".

When the UE receives a Service area list IE with an allowed area indication during a registration procedure or a generic UE configuration update procedure:

a) if the "Type of list" included in the Service area list IE does not indicate "all TAIs belonging to the PLMNs in the registration area are allowed area", the UE shall delete the old list of "allowed tracking areas" and store the tracking areas in the allowed area as the list of "allowed tracking areas". If the UE has a stored list of "non-allowed tracking areas", the UE shall delete that list; or

b) if the "Type of list" included in the Service area list IE indicates "all TAIs belonging to the PLMNs in the registration area are allowed area", the UE shall treat all tracking areas in the registered PLMN and its equivalent PLMN(s) as allowed area and delete the stored list of "allowed tracking areas" or the stored list of "non-allowed tracking areas".

When the UE receives a Service area list IE with a non-allowed area indication during a registration procedure or a generic UE configuration update procedure, the UE shall delete the old list of "non-allowed tracking areas" and store the tracking areas in the non-allowed area as the list of "non-allowed tracking areas". If the UE has a stored list of "allowed tracking areas", the UE shall delete that list.

If the UE is successfully registered to a PLMN and has a stored list of "allowed tracking areas":

a) while camped on a cell whose TAI is in the list of "allowed tracking areas", the UE shall stay in, or enter, the state 5GMM-REGISTERED.NORMAL-SERVICE and is allowed to initiate any 5GMM and 5GSM procedures; and

b) while camped on a cell which is in the registered PLMN or a PLMN from the list of equivalent PLMNs and whose TAI is not in the list of "allowed tracking areas", the UE shall enter the state 5GMM-REGISTERED.NON-ALLOWED-SERVICE, and:

1) if the UE is in 5GMM-IDLE mode or 5GMM-IDLE mode with suspend indication over 3GPP access, the UE:

i) shall not perform the registration procedure for mobility and periodic registration update with Uplink data status IE except for emergency services or for high priority access;

ii) shall not perform the registration procedure for mobility and periodic registration update with Follow-on request indicator set to "Follow-on request pending", except for:

- emergency services;

- high priority access;

- indicating a change of 3GPP PS data off UE status;

- sending an SOR transparent container;

- sending a UE policy container; or

- sending a UE parameters update transparent container;

iii) shall not initiate a service request procedure or request the lower layers to resume a suspended connection, except for:

- emergency services;

- emergency services fallback;

- high priority access;

- responding to paging;

- responding to notification received over non-3GPP access;

- indicating a change of 3GPP PS data off UE status;

- sending an SOR transparent container;

- sending a UE policy container; or

- sending a UE parameters update transparent container; and

2) if the UE is in 5GMM-CONNECTED mode or 5GMM-CONNECTED mode with RRC inactive indication over 3GPP access, the UE:

i) shall not perform the registration procedure for mobility and periodic registration update with Uplink data status IE except for emergency services or for high priority access;

ii) shall not initiate a service request procedure except for:

- emergency services;

- emergency services fallback;

- high priority access;

- responding to paging or responding to notification received over non-3GPP access;

iii) shall not initiate a 5GSM procedure except for:

- emergency services;

- high priority access; or

- indicating a change of 3GPP PS data off UE status; and

iv) shall not perform the NAS transport procedure except for the sending:

- SMS;

- an LPP message;

- a location services message;

- an SOR transparent container;

- a UE policy container;

- a UE parameters update transparent container; or

- a CIoT user data container.

NOTE 1: The contents of CIoT user data container can be data that is not for exception reports, or data that is for exception reports if allowed for the UE (see subclause 6.2.13).

If the UE is successfully registered to a PLMN and has a stored list of "non-allowed tracking areas":

a) while camped on a cell which is in the registered PLMN or a PLMN from the list of equivalent PLMNs and whose TAI is not in the list of "non-allowed tracking areas", the UE shall stay in, or enter, the state 5GMM-REGISTERED.NORMAL-SERVICE and is allowed to initiate any 5GMM and 5GSM procedures; and

b) while camped on a cell whose TAI is in the list of "non-allowed tracking areas", the UE shall enter the state 5GMM-REGISTERED.NON-ALLOWED-SERVICE, and:

1) if the UE is in 5GMM-IDLE mode or 5GMM-IDLE mode with suspend indication over 3GPP access, the UE:

i) shall not perform the registration procedure for mobility and periodic registration update with Uplink data status IE except for emergency services or for high priority access;

ii) shall not perform the registration procedure for mobility and periodic registration update with Follow-on request indicator set to "Follow-on request pending", except for:

- emergency services;

- high priority access;

- indicating a change of 3GPP PS data off UE status;

- sending an SOR transparent container;

- sending a UE policy container; or

- sending a UE parameters update transparent container; and

iii) shall not initiate a service request procedure or request the lower layers to resume a suspended connection, except for:

- emergency services;

- emergency services fallback;

- high priority access;

- responding to paging;

- responding to notification received over non-3GPP access;

- indicating a change of 3GPP PS data off UE status;

- sending an SOR transparent container;

- sending a UE policy container; or

- sending a UE parameters update transparent container; and

2) if the UE is in 5GMM-CONNECTED mode or 5GMM-CONNECTED mode with RRC inactive indication over 3GPP access, the UE:

i) shall not perform the registration procedure for mobility and registration update with the Uplink data status IE except for emergency services or for high priority access;

ii) shall not initiate a service request procedure or request the lower layers to resume a suspended connection, except for:

- emergency services;

- emergency services fallback;

- high priority access; or

- responding to paging or responding to notification received over non-3GPP access;

iii) shall not initiate a 5GSM procedure except for:

- emergency services;

- high priority access; or

- indicating a change of 3GPP PS data off UE status; and

iv) shall not perform the NAS transport procedure except for the sending:

- SMS;

- an LPP message;

- a location services message;

- an SOR transparent container;

- a UE policy container;

- a UE parameters update transparent container; or

- a CIoT user data container.

NOTE 2: The contents of CIoT user data container can be data that is not for exception reports, or data that is for exception reports if allowed for the UE (see subclause 6.2.13).

The list of "allowed tracking areas", as well as the list of "non-allowed tracking areas" shall be erased when:

a) the UE is switched off; and

b) the UICC containing the USIM is removed or an entry of the "list of subscriber data" with the SNPN identity of the SNPN is updated.

When a tracking area is added to the list of "5GS forbidden tracking areas for roaming" or to the list of "5GS forbidden tracking areas for regional provision of service" as specified in the subclauses 5.5.1.2.5 or 5.5.1.3.5, the tracking area shall be removed from the list of "allowed tracking areas" if the tracking area is already present in the list of "allowed tracking areas" and from the list of "non-allowed tracking areas" if the tracking area is already present in the list of "non-allowed tracking areas".

\*\*\*\*\*\* END CHANGE \*\*\*\*\*\*