**3GPP TSG-SA WG6 Meeting #42-bis-e S6-211067**

**e-meeting, 12th – 20th April 2021 (Merge of S6-210862, S6-210839 )**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.434** | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | SEAL Location Deviation Service | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung, InterDigital, Deutsche Telekom | | | | | | | | | |
| ***Source to TSG:*** | S6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | UASAPP | | | | |  | ***Date:*** | | | 2021-04-08 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | As per conclusions in TR 23.755, for the KI#12 (Track UAV location deviation), it is concluded that the solution #18 (Monitor UAV location deviation) as the way forward for the normative phase and SEAL should be enhanced with this new solution. This CR proposes Location Deviation Monitoring as new SEAL LMS service. | | | | | | | | |
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| ***Summary of change:*** | | Monitoring Location Deviation procedure is defined as new SEAL LMS service. | | | | | | | | |
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| ***Consequences if not approved:*** | | Monitoring UAV location as concluded in UASAPP work, will be unspecified. | | | | | | | | |
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| ***Clauses affected:*** | | 9.3.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:*** | |  | | | | | | | | |

\* \* \* First Change \* \* \* \*

### 9.3.x Monitoring Location Deviation

#### 9.3.x.1 General

The VAL server requests the Location Management Server to monitor the geographic area of the VAL UE. The LMS fetches the VAL UE’s location information periodically from 3GPP core network as specified in 3GPP TS 23.502 [11] and also, using the Location Information procedures specified in clause 9.3.7 and clause 9.3.10. With the periodic location information of the UE from 3GPP core network and SEAL procedures, the LMS server, compares if the current location of VAL UE is in the geographic area requested by VAL server. If the current location information received is not in the geographic area, then the LMS server notifies the VAL server that the VAL UE is not present in the predetermined geographic area, along with current location information of the VAL UE.

#### 9.3.x.2 Monitoring Location Deviation procedure

Figure 9.3.X.2-1 describes the procedure for monitoring the VAL UE’s location in a given geographic area.

Pre-condition:

- The LMS server authorized to consume the 3GPP core network service (Monitoring events as specified in 3GPP TS 23.502 [11]).



Figure 9.3.x.2-1: Monitoring VAL UE’s location at a given location

1. The VAL server sends Monitor Location Subscription Request to LMS server including VAL UE Identifier, predetermined geographic area information, notification interval and notification URI where the VAL server intends to receive the notifications from LMS server regarding VAL UE’s presence in a given area.

- "Geographic area" is the location information, which the VAL server wishes to monitor the VAL UE’s location adherence. This parameter can include an area of interest information and other relevant parameters.

- "Notify\_Interval" represents the periodic interval in which the LMS server needs to notify VAL UE’s location information to the VAL server. When the VAL UE moves away from the "Geographic area", then the LMS server ignores the "Notify\_Interval" and sends the location notification to the VAL server immediately.

2. LMS server, upon receiving the subscription request from VAL server, sends Monitor Location Subscription response, indicating that the LMS server accepts VAL server’s request and will monitor the location of the VAL UE to verify if the VAL UE is in the geographic area.

3. LMS processes the Geographic area information in the request, and then subscribes to UE location monitoring as specified in 3GPP TS 29.502 [11] with appropriate parameters mapping. Based on the subscription, the LMS receives the VAL UE location information periodically from the 3GPP core network.

4. LMS shall use the Location information procedures as specified in clause 9.3.7 and clause 9.3.10, to periodically obtain the VAL UE location information. Based on the geographic information from the VAL server, the LMS server may determine to additionally include the positioning methods in SEAL LMS procedures to obtain location information.

5a and 5b. LMS server processes the location information received from SEAL Location Information procedures and the core network, and validates the information. If the location information is matching, then the LMS shall check if the VAL UE’s current location is within the geographic area received in step 1. The UAE server will continue with step 6, step 7 and step 8 as applicable.

6. If the location information received from Location management client and the core network do not match, then the LMS server shall consider the VAL UE as outside from its specified geographic area and shall notify ("Notify Mismatch Location" message) the VAL server of the same, including VAL UE ID and the location information from LMS and the core network in the notification message.

7. If the VAL UE’s current location is from Location management client and the core network matches, and not in the geographic area received from VAL server in Monitor Location Subscription Request message, then the LMS considers the VAL UE as outside from its specified geographic area and shall notify the VAL server that the VAL UE’s current location is outside of geographic area and VAL UE ID in "Notify Location Absence" message.

8. When the VAL UE’s current location is in geographic area, then the LMS shall notify ("Notify Presence" message) the VAL server periodically, according to the "Notify\_Interval" value in "Monitor Location Subscription Request" message, indicating the VAL server that the VAL UE is within the geographic area, along with VAL UE’s current location information.

Editor’s Note: The definition of information flows and the APIs is FFS.

\* \* \* End of changes \* \* \* \*