**3GPP TSG-SA3 Meeting #106-e *S3-220262-r3***

e-meeting, 14 – 25 February 2022 (revision of S3-yyxxxx)

**Source: China Mobile**

**Title: New SID on enhancement of AKMA**

**Document for: Approval**

**Agenda Item: 4.18**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: Study on enhancement of AKMA

Acronym: AKMA\_en

Unique identifier:

Potential target Release: Rel-18

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  |  | X |  |
| No | X | X | X |  |  |
| Don't know |  |  |  |  | X |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Feature |
|  | Building Block |
|  | *Work Task* |
| X | Study Item |

## 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| N/A | N/A | N/A | N/A |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 800036 | Study on authentication and key management for applications based on 3GPP credential in 5G | Study on AKMA in Rel-16 |
| [890030](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=850021) |

|  |  |
| --- | --- |
|  | Authentication and key management for applications based on 3GPP credential in 5G  |

 | Rel-17 work item |
| [890008](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890008) | CT aspects of AKMA | Related CT work item |

# 3 Justification

SA3 has specified Authentication and Key management for Applications based on 3GPP credentials (AKMA) in TS 33.535. The AKMA feature has been used as a solution to protect the communication between the UE and the Application Function (AF) in the scenarios of ProSe, MSGin5G, etc. Considering the current AKMA use cases and potential ones, the roaming aspects have to be considered and specified, which have not been addressed in rel-17 currently. Though the roaming aspects have been discussed in SA3 previously, it seems there were still some misunderstandings and inconsistency where a study would help for clarification and completeness, for example, what is the roaming architecture for AKMA and whether there are potential security issues, etc. In addition, as per S3i-200477, SA3 has to make sure the AKMA solutions comply with regulatory requirements. Considering above, as well as the discussion between SA3 and SA3-LI, SA3 is expected to have a study item to clarify AKMA roaming architecture and meet LI requirements.

The other aspect is the consideration of introducing Authentication Proxy in AKMA. TS 33.222 specifies the use of Authentication Proxy in GBA, where an Authentication Proxy (AP) is a proxy resides between the UE and ASs. It helps to reduce the consumption of authentication vectors and/or to minimize SQN synchronization failures, and relieves the AS of security tasks. This is beneficial where different application servers (or Application Functions in AKMA) reside in the same trust domain or in the same edge node. With the AP, these application servers can rely on the AP to execute AKMA procedures, which is more cost efficient than the case where each application servers execute AKMA procedures separately. Since AKMA has been adopted as a solution in MEC, and it is possible that different application servers reside in the same edge cloud or belong to the same service vendor, it is beneficial to consider the feasibility of introducing a similar proxy in AKMA.

# 4 Objective

The objective is to study the following aspects:

1. Support of AKMA roaming, specifically:

- Identify AKMA roaming architecture

- Investigate solutions commonly acceptable to SA3 and SA3-LI in order to meet LI requirements

1. The feasibility of introducing the AP into AKMA, specifically,

- Investigate the architecture impacts and procedures of using the AP in AKMA

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
| Internal TR | 33.xxx | Study on enhancement of AKMA | TSG#97(Sep 2022) | TSG#98( Dec 2022) | Xiaoting Huang, China Mobile, huangxiaoting@chinamobile.com |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Xiaoting Huang, China Mobile, huangxiaoting@chinamobile.com

# 7 Work item leadership

SA3

# 8 Aspects that involve other WGs

SA2 for architectural considerations

CT groups for stage-3 work

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| China Mobile |
| Ericsson? |
| Qualcomm? |
| ZTE |
| Huawei |
| Hisilicon |
| Nokia |
| Nokia Shanghai Bell |