**3GPP TSG-SA3 Meeting #100e *S3-202037-r1***

**e-meeting, 17 -28 August 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **33.535** | **CR** | **0032** | **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 |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | AKMA SBA interface clarifications | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, ZTE, China Mobile, Samsung | | | | | | | | | |
| ***Source to TSG:*** | S3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AKMA | | | | |  | ***Date:*** | | | 2020-08-07 |
|  |  | | | |  | |  | | |  |
| ***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 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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The Service Based Interfaces of the procedures need alignment with respect to the figures, the procedure steps and the SBI definitions.Moreover it is a good practise to follow the SBI definitions as in other specifications e.g. summarizing the services provided by an NF in a table and then providing the details of the service definitions. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Propose clarifications on the SBA related clauses. The clarifications are the following:  - The AF does not provide any AKMA services, it only uses AKMA services, therefore any reference to Naf in the specification and figures is removed.  - The NOTE that the AAnF could be co-located with other NFs such as AUSF or NEFis removed since in the context of the SBA architecture, two NFs could always be co-located according to operator deployment scenarios.  - The AUSF does not provide any AKMA related services therefore the Nausf interface references and clauses are removed.  - The UDM provides SBA services that AKMA procedures use but the UDM services are already defined in TS 33.501. However for the sake of completeness a new clause is added.  - The services provided by the AAnF are summarized in a table  - The definition of the Naanf\_AKMA\_KeyRegistration service operation is aligned with the specification.  - The Naanf\_AKMA\_AFKey service operation is added since its definition is missing from the existing specification.  - The services provided by the NEF are summarized in a table  - The definition of the Nnef\_AKMA\_AFKey service operation is aligned with the normative text | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Unclear specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.1, 4.3, 7.1.1, 7.1.2, 7.1.X (new clause), 7.2, 7.3.1, 7.3.2, 7.X (new clause) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\* 1st CHANGE\*\*\*

## 4.1 Reference model

Figure 4.1-1 shows a fundamental network model of AKMA, as well as the interfaces between them.



Figure 4.1-1: Fundamental Network Model for AKMA

The AKMA service requires a new logical entity: AKMA Anchor Function (AAnF).

AAnF is the anchor function in the HPLMN that generates the key material to be used between the UE and the AF and maintains UE AKMA contexts.

\*\*\* 2nd CHANGE\*\*\*

## 4.3 AKMA Service Based Interfaces

The following interfaces are involved in AKMA network architecture:

**- Nnef:** Service-based interface exhibited by NEF.

**- Nudm:** Service-based interface exhibited by UDM.

NOTE X: UDM services related to AKMA service are defined in TS 33.501 [2] clause 14.2.2.

**- Naanf:** Service-based interface exhibited by AAnF.

The AAnF interacts with the AUSF and the AF using Service-Based Interfaces. When the AF is located in the operator's network, the AAnF shall use Service-Based Interface to communicate with the AF directly. When the AF is located outside the operator's network, the NEF shall be used to exchange the messages between the AF and the AAnF.

\*\*\* 3rd CHANGE\*\*\*

## 7.1 Services Provided by AAnF

### 7.1.1 General

The following table shows the AAnF Services and AAnF Service Operations.

Table 7.1.1-1: List of AAnF Services

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation  Semantics | Example Consumer(s) |
| Naanf\_AKMA | KeyRegistration | Request/Response | AUSF |
| AFKey | Request/Response | AF, NEF |

### 7.1.2 Naanf\_AKMA\_KeyRegistration service operation

**Service operation name:** Naanf\_AKMA\_KeyRegistration.

**Description:** The NF consumer requests the AAnF to store the AKMA related key material.

**Input, Required:** SUPI, A-KID, KAKMA

**Input, Optional:** None.

**Output, Required:** None.

**Output, Optional:** None.

\*\*\* 4th CHANGE\*\*\*

### 7.1.X Naanf\_AKMA\_AFKey service operation

**Service operation name:** Naanf\_AKMA\_AFKey.

**Description:** The NF consumer requests the AAnF to provide AF related key material.

**Input, Required:** A-KID, AF\_ID

**Input, Optional:** None.

**Output, Required:** KAF, KAF expiration time.

**Output, Optional:** None.

\*\*\* 5th CHANGE\*\*\*

## 7.2 Void

### 

\*\*\* 6th CHANGE\*\*\*

## 7.3 Services Provided by NEF

### 7.3.1 General

The NEF exposes AKMA Application Key derivation service to the requester NF.

The following table shows the NEF Services and NEF Service Operations related to AKMA service.

Table 7.1.1-1: List of AAnF Services

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation  Semantics | Example Consumer(s) |
| Nnef\_AKMA | AFKey | Request/Response | AF |

### 7.3.2 Nnef\_AKMA\_AFKey service operation

**Service operation name:** Nnef\_AKMA\_AFKey.

**Description:** The NF consumer requests the NEF to provide AF related key material.

**Input, Required:** A-KID, AF\_ID

**Input, Optional:** None.

**Output, Required:** KAF, KAF expiration time.

**Output, Optional:** None.

\*\*\* 7th CHANGE\*\*\*

## 7.X Services Provided by UDM

UDM services related to AKMA service are defined in TS 33.501 [2] clause 14.2.2.

\*\*\* END OF CHANGES\*\*\*