**3GPP TSG-SA3 Meeting #114e *ad-hoc draft\_S3-240060-r1***

Electronic meeting, online, 22 - 26 January 2024

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **33.511** | **CR** | **0060** | **rev** | **1** | **Current version:** | **16.11.0** |  |
|  | | | | | | | | |
| *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 |  |

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| ***Title:*** | Change RRC SQN to PDCP COUNT | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei; HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | S3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | SCAS\_5G | | | | |  | ***Date:*** | | | 2024-01-22 |
|  |  | | | |  | |  | | |  |
| ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | RRC SQN is not existed, thus change RRC SQN to PDCP COUNT. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Change RRC SQN to PDCP COUNT. | | | | | | | | |
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| ***Consequences if not approved:*** | | Current description is not accurate. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.2.1.9 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

 \*\*\*\*\*\*\*\*\*\*\*\*\* 1st of Change\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 4.2.2.1.9 Replay protection of RRC-signalling

*Requirement Name:* Replay protection of RRC-signalling.

*Requirement Reference:* TS 33.501 [2], clause 5.3.3

*Requirement Description:* The gNB supports integrity protection and replay protection of RRC-signallingas specified in TS 33.501 [2], clause 5.3.3.

*Threat References:* TR 33.926 [5], clause D.2.2.2 – Control plane data integrity protection.

***Test Case****:*

**Test Name:** TC-UP-DATA-RRC-REPLAY\_gNB

**Purpose:** Toverify the replay protection of RRC-signalling between UE and gNB over the NG RAN air interface.

**Pre-Condition:**

- The gNB network product shall be connected in emulated/real network environments.

- Tester shall have knowledge of the integrity algorithm and the corresponding protection keys.

- The tester shall have access to the NG RANs air interface.

- The tester shall active the integrity protection of RRC-signalling.

**Execution Steps:**

1. The tester shall capture the data sent between UE and the gNB using any network analyser over the NG RAN air interface.

2. Tester shall filter RRC signalling packets.

3. Tester shall check for the PDCP COUNT of the filtered RRC signalling packets and shall use any packet crafting tool to create RRC signalling packets similar to the captured packets or the tester shall replay the captured RRC uplink packet to the gNB to perform the replay attack over gNB.4. Tester shall check whether the replayed RRC signalling packets were processed by the gNB or not, by capturing over NG RAN air interface to see if any corresponding response message is received from the gNB.

5. Tester shall confirm that gNB provides replay protection by dropping/ignoring the replayed packet if no corresponding response is sent by the gNB to the replayed packet.

**Expected Results:**

The RRC signalling over the NG RAN air interface is replay protected.

**Expected format of evidence:**

Evidence suitable for the interface, e.g. Screenshot containing the operational results.

\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change\*\*\*\*\*\*\*\*\*\*\*\*\*