**3GPP TSG-CT3 Meeting #119bis-e *C3-220158***

**E-Meeting, 17th – 21th January 2022 (Revision of C3-22xxxx)**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.522** | **CR** | 0485 | **rev** | **-** | **Current version:** | **17.4.0** |  |
|  | | | | | | | | |
| *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:*** | Procedure of management of 5G access stratum time distribution | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | IIoT | | | | |  | ***Date:*** | | | 2022-01-21 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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 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:*** | | NEF service supporting management of 5G access stratum time distribution is defined in clause 5.2.6.25 and clause 4.15.9.4 of TS 23.502. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The procedure supporting management of 5G access stratum time distribution is defined | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Management of 5G access stratum time distribution is not supported | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.4.24.0, 4.4.24.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 4.4.24.0 General

Time synchronization exposure allows an AF to configure time synchronization in 5GS. Depending on the time distribution method to use for the service (e.g. (g)PTP or 5G access stratum time distribution), the AF may require retrieving 5GS time synchronization capabilities prior to sending the time synchronization service request as described in subclause 4.4.24.1. For (g)PTP operation, the Time synchronization service allows an AF to subscribe to the UE availability for time synchronization service and to configure the (g)PTP instance in 5GS as described in subclause 4.4.24.2. For 5G access stratum based time distribution, the AF can influence the 5G access stratum time distribution as described in subclause 4.4.24.3. The time synchronization exposure is provided by NEF that uses the service provided by TSCTSF. The AF that is part of operator's trust domain may invoke the services directly with TSCTSF.

NOTE: The AF can use either the procedure for configuring the (g)PTP instance in 5GS as described in clause 4.4.24.2 or the procedure for controlling the 5G access stratum time distribution as described in clause 4.4.24.3 for a particular UE. The procedures are not intended to be used in conjunction.

\*\*\* NextChange \*\*\*

#### 4.4.24.3 Management of 5G access stratum time distribution

The procedures are used by the AF to activate, update or delete the 5G access stratum time distribution for one UE, group of UEs or any UE using the DNN and S-NSSAI.

In order to configure the 5G access stratum time distribution parameters, the AF shall initiate an HTTP POST request to the NEF for the "ASTI Configurations" resource. The body of the HTTP POST message shall include the 5G access stratum time distribution parameters within the AccessTimeDistributionData data structure.

Upon receipt of the corresponding HTTP POST message and the request is authorized by the NEF, the NEF invokes the Ntsctsf\_TimeSynchronization\_ASTICreate service operation with the corresponding TSCTSF as defined in 3GPP TS 29.565 [50]. After receiving a successful response from the TSCTSF, the NEF shall create a new resource and assign an identifier for the "Individual ASTI Configuration" resource. Then the NEF shall send a HTTP "201 Created" response with AccessTimeDistributionData data structure as response body and a Location header field containing the URI of the created individual resource.

In order to update an existing Individual ASTI Configuration, the AF may send an HTTP PUT message to the resource "Individual ASTI Configuration" requesting the NEF to change all properties in the existing resource. The body of the HTTP PUT request message shall include AccessTimeDistributionData data type as defined in subclause 5.15.4.3.x1.

Upon receipt of the corresponding HTTP PUT message and the request is authorized by the NEF, the NEF shall interact with the TSCTSF to modify an existing resource at the TSCTSF by using Ntsctsf\_TimeSynchronization\_ASTIUpdate service operation as defined in 3GPP TS 29.565 [50]. If the modification request is accepted by the TSCTSF and the TSCTSF informs the NEF with a successful response, the NEF shall update the existing resource for the "Individual ASTI Configuration" resource. Then the NEF shall send a HTTP response including "200 OK" status code with AccessTimeDistributionData data structure or "204 No Content" status code.

To delete an existing Individual ASTI Configuration, the AF shall initiate an HTTP DELETE request to the NEF for the "Individual ASTI Configuration" resource.

Upon receipt of the corresponding HTTP DELETE message, if the AF is authorized, the NEF shall interact with the TSCTSF to delete an existing Individual Time Synchronization Exposure Configuration at the TSCTSF by using Ntsctsf\_TimeSynchronization\_ASTIDelete service operation as defined in 3GPP TS 29.565 [50]. If the request is accepted by the TSCTSF, the NEF shall delete the existing resource for the "Individual ASTI Configuration" resource. Then the NEF shall send a HTTP "204 No Content" response.

AF may request and query the status of the access stratum time distribution sending the HTTP POST to the resource"ASTI Configuration Retrieve". The body of the HTTP POST request message shall include StatusRequestData data type as defined in subclause 5.15.4.3.x2.

Upon receipt of the corresponding HTTP POST message, if the AF is authorized, the NEF shall interact with the TSCTSF by using Ntsctsf\_TimeSynchronization\_ASTIGet service operation as defined in 3GPP TS 29.565 [50]. Upon receipt of response from the TSCTSF, the NEF shall shall send a HTTP "200 OK" response with the StatusResponseData data structure as defined in subclause 5.15.4.3.x3 in the payload.

Editor's Note: Error and redirection responses are FFS.

\*\*\* End of Changes \*\*\*