**3GPP TSG-CT3 Meeting #130C3-234641**

**Xiamen, China, 9 - 13 October, 2023 (Revision of C3-234282)**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.552** | **CR** | **0074** | **rev** | **1** | **Current version:** | **18.2.0** |  |
|  | | | | | | | | |
| *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:*** | Procedures for Relative Proximity Analytics | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, Samsung | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eNA\_Ph3 | | | | |  | ***Date:*** | | | 2023-09-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Procedures for Relatvie Proximity Analytics needs to be added to support this new analytics in the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding procedures for Relative Proximity Analytics. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Missing procedures for Relative Proximity Analytics. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 5.7.20(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:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

[3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[4] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[5] 3GPP TS 29.520: "5G System; Network Data Analytics Services; Stage 3".

[6] 3GPP TS 29.508: "5G System; Session Management Event Exposure Service; Stage 3".

[7] 3GPP TS 29.523: "5G System; Policy Control Event Exposure Service; Stage 3".

[8] 3GPP TS 29.554: "5G System; Background Data Transfer Policy Control Service; Stage 3".

[9] 3GPP TS 29.521: "5G System; Binding Support Management Service; Stage 3".

[10] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[11] 3GPP TS 29.591: "5G System; Network Exposure Function Southbound Services; Stage 3".

[12] 3GPP TS 29.517: "5G System; Application Function Event Exposure Service; Stage 3".

[13] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[14] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[15] 3GPP TS 29.574: "5G System; Data Collection Coordination Services; Stage 3".

[16] 3GPP TS 29.575: "5G System; Analytics Data Repository Services; Stage 3".

[17] 3GPP TS 29.576: "5G System; Messaging Framework Adaptor Services; Stage 3".

[18] 3GPP TS 29.518: "5G System; Access and Mobility Management Services; Stage 3".

[19] 3GPP TS 28.532: "Management and orchestration; Generic management services".

[20] 3GPP TS 29.536: "5G System: Network Slice Admission Control Services; Stage 3".

[21] 3GPP TS 29.531: "5G System: Network Slice Selection Services; Stage 3".

[22] 3GPP TS 29.503: "5G System; Unified Data Management Services; Stage 3".

[23] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[24] 3GPP TS 29.507: "5G System; Access and Mobility Policy Control Service; Stage 3".

[25] 3GPP TS 29.512: "5G System; Session Management Policy Control Service; Stage 3".

[26] 3GPP TS 29.510: "5G System: Network function repository services; Stage 3".

[27] 3GPP TS 28.552: "Management and orchestration; 5G performance measurements".

[28] 3GPP TS 28.533: "Management and orchestration; Architecture framework".

[29] 3GPP TS 37.320: " Radio measurement collection for Minimization of Drive Tests (MDT); Overall description".

[30] 3GPP TS 28.554: " Management and orchestration; 5G end to end Key Performance Indicators (KPI)".

[31] 3GPP TS 28.550: "Management and orchestration; Performance assurance".

[32] 3GPP TS 37.320: "Radio measurement collection for Minimization of Drive Tests (MDT); Overall description; stage 2".

[33] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification".

[34] 3GPP TS 36.331: "Radio Resource Control (RRC); Protocol specification".

[35] 3GPP TS 38.215: "NR; Physical layer measurements".

[36] 3GPP TS 28.310: "Management and orchestration; Energy efficiency of 5G".

[37] 3GPP TS 28.545: "Management and orchestration; Fault Supervision (FS)".

[38] 3GPP TS 28.104: "Management and orchestration; Management Data Analytics (MDA)".

[39] 3GPP TS 29.551: "5G System; Packet Flow Description Management Service; Stage 3".

[40] 3GPP TS 29.564: "5G System; User Plane Function Services; Stage 3".

[41] 3GPP TS 29.515: "5G System; Gateway Mobile Location Services; Stage 3".

[42] 3GPP TS 28.622: "Generic Network Resource Model (NRM)Integration Reference Point (IRP); Information Service (IS)".

[43] 3GPP TS 32.422: "Subscriber and equipment trace; Trace control and configuration management".

\*\*\* 2nd Change \*\*\*

### 5.7.20 Relative Proximity Analytics

This procedure is used by the NWDAF service consumer e.g. NEF or AF to obtain Relative Proximity Analytics among UEs provided by NWDAF to assist more accurately localize a cluster (or a set) of UEs via provisioning statistics and/or prediction information related to their relative proximity.



Figure 5.7.20-1: Procedure for Relative Proximity Analytics

1a. In order to obtain the Relative Proximity Analytics, the NF may invoke Nnwdaf\_AnalyticsInfo\_Request service operation as described in clause 5.2.3.1.

1b-1c. In order to subscribe to the Relative Proximity Analytics, the NF may invoke Nnwdaf\_EventsSubscription\_Subscribe service operation as described in clause 5.2.2.1.

2a-2b. If the event is set to "RELATIVE\_PROXIMITY" and the subscription/request is authorized, the NWDAF may invoke Namf\_EventExposure\_Subscribe service operation as described in clause 5.3.2.2.2 of 3GPP TS 29.518 [18] to subscribe to the notification of UE ID and UE location. The AMF responds to the NWDAF an HTTP "201 Created" response.

3a-3b. If step 2a and step 2b are performed, the AMF invokes Namf\_EventExposure\_Notify service operation as described in 3GPP TS 29.518 [18] clause 5.3.2.4. The NWDAF responds to the AMF an HTTP "204 No Content" response.

4a-4b. The NWDAF may invoke Ngmlc\_Location\_ProvideLocation service operation to retrieve UE Location and UE Location Accuracy by sending an HTTP POST request to the URI associated with the "provide-location" custom operation as described in 3GPP TS 29.515 [41] clause 5.2.2.2. The GMLC responds to the NWDAF an HTTP "201 Created" response.

5a-5b. If step 4a and step 4b are performed, the GMLC may invoke Ngmlc\_Location\_EventNotify service operation by sending an HTTP POST request to the NWDAF identified by the notification URI received in step 4a. The NWDAF responds to the GMLC an HTTP "204 No Content" response.

6a-6b. If the AF is trusted, the NWDAF may invoke Naf\_EventExposure\_Subscribe service operation by sending an HTTP POST request targeting the resource "Application Event Subscriptions" to subscribe the Proximity attributes and/or Proximity related input data of UE(s) from AF directly. The AF responds to the NWDAF an HTTP "201 Created" response.

7a-7b. If step 6a and step 6b are performed, the AF may invoke Naf\_EventExposure\_Notify service operation by sending an HTTP POST request to the NWDAF identified by the notification URI received in step 6a. The NWDAF responds to the AF an HTTP "204 No Content" response.

8a-8d. If the AF is untrusted, the NWDAF may invoke Nnef\_EventExposure\_Subscribe service operation to the NEF by sending an HTTP POST request targeting the resource "Network Exposure Event Subscriptions" and then the NEF invokes Naf\_EventExposure\_Subscribe service operation by sending an HTTP POST request targeting the resource "Application Event Subscriptions". The AF responds to the NEF an HTTP "201 Created" response and then the NEF responds to the NWDAF an HTTP "201 Created" response.

9a-9d. If step 8a to step 8d are performed, the AF may invoke Naf\_EventExposure\_Notify service operation by sending an HTTP POST request to the NEF identified by the notification URI received in step 8b and the NEF invokes Nnef\_EventExposure\_Notify service operation by sending an HTTP POST request to the NWDAF identified by the notification URI received in step 8a. The NWDAF responds to the NEF an HTTP "204 No Content" response and then the NEF responds to the AF an HTTP "204 No Content" response.

10. The NWDAF may collect Per UE information of Speed and Orientation related input data as specified in clause 4.3.30 of TS 28.622 [42], clause 11.1 of TS 28.532 [19] and clause 5.10.29 of TS 32.422 [43].

11. The NWDAF derives the Relative Proximity Analytics based on the data collected from AMF, GMLC, (DC)AF, and/or OAM.

12a. If step 1a is performed, the NWDAF responds to the Nnwdaf\_AnalyticsInfo\_Request service operation as described in clause 5.2.3.1.

12b-12c. If step 1b and step 1c are performed, the NWDAF invokes Nnwdaf\_EventsSusbcription\_Notify service operation as described in clause 5.2.2.1.

13a-13b. The same as step 3a and step 3b.

14a-14b. The same as step 5a and step 5b.

15a-15b. The same as step 7a and step 7b.

16a-16d. The same as step 9a and step 9b.

17. The same as step 10.

18. The same as step 11.

19a-19b. The same as step 12b and step 12c.

NOTE 1: For details of Nnwdaf\_EventsSubscription\_Subscribe/Unsubscribe/Notify or Nnwdaf\_AnalyticsInfo\_Request service operations refer to 3GPP TS 29.520 [5].

NOTE 2: For details of Nnef\_EventExposure\_Subscribe/Notify service operations refer to 3GPP TS 29.591 [11].

NOTE 3: For details of Naf\_EventExposure\_Subscribe/Notify service operations refer to 3GPP TS 29.517 [12].

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