**TSG-CT WG3 Meeting #108-e *C3-201xyz***

**E-Meeting, 19th – 28th February 2020 (Revision of C3-201295)**

|  |
| --- |
| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **29.522** | **CR** | **0143** | **rev** | **1** | **Current version:** | **16.2.0** |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | AnalyticsExposure API, Support of abnormal behaviour |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eNA |  | ***Date:*** | 2020-02-17 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 canbe 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 AnalyticsExposure API is used by the AF to request the NWDAF via the NEF to report the analytics results. However, the data type for Abnormal behaviour analytics is not defined yet. |
|  |  |
| ***Summary of change:*** | Complete the abnormal behaviour definition of AnalyticsExposure API. |
|  |  |
| ***Consequences if not approved:*** | Incomplete specification. |
|  |  |
| ***Clauses affected:*** | 5.6.3.2; 5.6.3.3.4; 5.6.3.3.14; 5.6.3.3.x (new); A.4 |
|  |  |
|  | **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 introduces backward compatible feature into the OpenAPI file for AnalyticsExposure API. |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**…**

**Proposed changes:**

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

#### 5.6.3.2 Reused data types

The data types reused by the AnalytcisExposure API from other specifications are listed in table 5.6.3.2-1.

Table 5.6.3.2-1: Re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| AdditionalMeasurement | 3GPP TS 29.520 [27] |  |
| AnalyticsReportingRequirement | 3GPP TS 29.520 [27] | Describes the analytics reporting requirement information. |
| DateTime | 3GPP TS 29.122 [4] |  |
| DurationSec | 3GPP TS 29.122 [4] | Seconds of duration. |
| ExternalGroupId | 3GPP TS 29.122 [4] | External Group Identifier for a user group. |
| Gpsi | 3GPP TS 29.571 [8] | Identifies a GPSI. |
| NotificationMethod | 3GPP TS 29.508 [26] | Represents the Notification Method. |
| EventReportingRequirement | 3GPP TS 29.520 [27] |  |
| SamplingRatio | 3GPP TS 29.571 [8] | Indicates Sampling Ratio. |
| ScheduledCommunicationTime | 3GPP TS 29.122 [4] |  |
| SupportedFeatures | 3GPP TS 29.571 [8] | Used to negotiate the applicability of the optional features defined in table 5.6.4-1. |
| TargetUeInformation | 3GPP TS 29.520 [27] |  |
| Uinteger | 3GPP TS 29.571 [8] | Unsigned integer. |
| Uri | 3GPP TS 29.571 [8] | Identifies a referenced resource. |
| WebsockNotifConfig | 3GPP TS 29.122 [4] | Contains the configuration parameters to set up notification delivery over Websocket protocol. |
| LocationArea5G | 3GPP TS 29.122 [4] |  |
| Communication | 3GPP TS 29.520 [27] |  |

\*\*\* Next Change \*\*\*

##### 5.6.3.3.4 Type: AnalyticsEventNotif

Table 5.6.3.3.4-1: Definition of type AnalyticsEventNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| analyEvent | AnalyticsEvent | M | 1 | Detected analytics event. |  |
| timeStamp | DateTime | M | 1 | Time at which the event is observed. |  |
| ueMobilityInfos | array(UeMobilityExposure) | C | 1..N | Contains the UE mobility information.Shall be present if the "analyEvent" attribute sets to "UE\_MOBILITY" | Ue\_Mobility |
| ueCommInfos | array(UeCommunicationExposure) | C | 1..N | Contains the application communication information.Shall be present if the "analyEvent" attribute sets to "UE\_COMM" | Ue\_Communication |
| abnormalInfos | array(AbnormalExposure) | C | 1..N | Contains the user’s abnormal behavior information.Shall be present if the "analyEvent" attribute sets to "ABNORMAL\_BEHAVIOR" | Abnormal\_Behavior |
| congestInfo | CongestInfo | C | 0..1 | Contains the UE’s user data congestion information.Shall be present if the "analyEvent" attribute sets to "CONGESTION" | Congestion |

Editor’s Note: The definition of AbnormalInfo and CongestInfo are FFS.

\*\*\* Next Change \*\*\*

##### 5.6.3.3.14 Type AnalyticsData

Table 5.6.3.3.14-1: Definition of type AnalyticsData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| ueMobilityInfos | array(UeMobilityExposure) | C | 1..N | Contains the UE mobility information.Shall be present if the "analyEvent" attribute sets to "UE\_MOBILITY" | Ue\_Mobility |
| ueCommInfos | array(UeCommunicationExposure) | C | 1..N | Contains the application communication information.Shall be present if the "analyEvent" attribute sets to "UE\_COMM" | Ue\_Communication |
| abnormalInfos | array(AbnormalExposure) | C | 1..N | Contains the user’s abnormal behavior information.Shall be present if the "analyEvent" attribute sets to "ABNORMAL\_BEHAVIOR" | Abnormal\_Behavior |
| suppFeat | SupportedFeatures | M | 1 | Represents the features supported by the NF service consumer. |  |

\*\*\* Next Change \*\*\*

##### 5.6.3.3.x Type AbnormalExposure

Table 5.6.3.3.x-1: Definition of type AbnormalExposure

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| gpsis | array(Gpsi) | C | 1..N | Each element identifies a UE which is affected with the Exception.Shall be present if the subscription request applies to more than one UE. |  |
| excep | Exception | M | 1 | Contains the exception information. |  |
| ratio | SamplingRatio | C | 0..1 | If the analytics result applies for a group of UEs or any UE, this attribute contains the percentage of UEs. The sum of all ratios on a given abnorBehavrs (which is of AbnormalBehaviour data type) is equal or less than 100%. |  |
| confidence | Uinteger | C | 0..1 | If the analytics result is a prediction, it indicates the confidence of the prediction. |  |
| addtMeasInfo | AdditionalMeasurement | O | 0..1 | Additional measurement. |  |

\*\*\* Next Change \*\*\*

# A.4 AnalyticsExposure API

openapi: 3.0.0

info:

 title: 3gpp-analyticsexposure

 version: 1.0.0.alpha-1

 description: |

 API for Analytics Exposure.

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externalDocs:

 description: 3GPP TS 29.522 V16.2.0; 5G System; Network Exposure Function Northbound APIs.

 url: 'http://www.3gpp.org/ftp/Specs/archive/29\_series/29.522/'

security:

 - {}

 - oAuth2ClientCredentials: []

servers:

 - url: '{apiRoot}/3gpp-analyticsexposure/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in subclause 5.2.4 of 3GPP TS 29.122.

paths:

 /{afId}/subscriptions:

 get:

 summary: read all of the active subscriptions for the AF

 tags:

 - AF level GET Operation

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK (Successful get all of the active subscriptions for the AF)

 content:

 application/json:

 schema:

 type: array

 items:

 $ref: '#/components/schemas/AnalyticsExposureSubsc'

 minItems: 0

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 post:

 summary: Creates a new subscription resource

 tags:

 - subscription level POST Operation

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 requestBody:

 description: new subscription creation

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/AnalyticsExposureSubsc'

 callbacks:

 notification:

 '{request.body#/notifUri}':

 post:

 requestBody: # contents of the callback message

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/AnalyticsEventNotification'

 responses:

 '204':

 description: No Content (successful notification)

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 responses:

 '201':

 description: Created (Successful creation)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/AnalyticsExposureSubsc'

 headers:

 Location:

 description: 'Contains the URI of the newly created resource'

 required: true

 schema:

 type: string

 '204':

 description: Successful case. The resource has been successfully created and no additional content is to be sent in the response message.

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /{afId}/subscriptions/{subscriptionId}:

 get:

 summary: read an active subscription for the AF and the subscription Id

 tags:

 - Subscription level GET Operation

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 - name: subscriptionId

 in: path

 description: Identifier of the subscription resource

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK (Successful get the active subscription)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/AnalyticsExposureSubsc'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 put:

 summary: Updates/replaces an existing subscription resource

 tags:

 - Subscription level PUT Operation

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 - name: subscriptionId

 in: path

 description: Identifier of the subscription resource

 required: true

 schema:

 type: string

 requestBody:

 description: Parameters to update/replace the existing subscription

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/AnalyticsExposureSubsc'

 responses:

 '200':

 description: OK (Successful deletion of the existing subscription)

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/AnalyticsExposureSubsc'

 '204':

 description: Successful case. The resource has been successfully updated and no additional content is to be sent in the response message.

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 summary: Deletes an already existing subscription

 tags:

 - Subscription level DELETE Operation

 parameters:

 - name: afId

 in: path

 description: Identifier of the AF

 required: true

 schema:

 type: string

 - name: subscriptionId

 in: path

 description: Identifier of the subscription resource

 required: true

 schema:

 type: string

 responses:

 '204':

 description: No Content (Successful deletion of the existing subscription)

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /fetch:

 post:

 summary: Fetch analytics information

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/AnalyticsRequest'

 responses:

 '200':

 description: The requested information was returned successfully.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/AnalyticsData'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

 AnalyticsExposureSubsc:

 type: object

 properties:

 analyEventsSubs:

 type: array

 items:

 $ref: '#/components/schemas/AnalyticsEventSubsc'

 minItems: 1

 analyRepInfo:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/EventReportingRequirement'

 notifUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 notifId:

 type: string

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - analyEventsSubs

 - analyRepInfo

 - notifUri

 - notifId

 AnalyticsEventNotification:

 type: object

 properties:

 notifId:

 type: string

 analyEventNotifs:

 type: array

 items:

 $ref: '#/components/schemas/AnalyticsEventNotif'

 minItems: 1

 AnalyticsEventNotif:

 type: object

 properties:

 analyEvent:

 $ref: '#/components/schemas/AnalyticsEvent'

 timeStamp:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 ueMobilityInfos:

 type: array

 items:

 $ref: '#/components/schemas/UeMobilityExposure'

 minItems: 1

 ueCommInfos:

 type: array

 items:

 $ref: '#/components/schemas/UeCommunicationExposure'

 minItems: 1

 abnormalInfos:

 type: array

 items:

 $ref: '#/components/schemas/AbnormalExposure'

 minItems: 1

 congestInfo:

 type: string

 required:

 - analyEvent

 - timeStamp

 AnalyticsEventSubsc:

 type: object

 properties:

 analyEvent:

 $ref: '#/components/schemas/AnalyticsEvent'

 analyEventFilter:

 $ref: '#/components/schemas/AnalyticsEventFilterSubsc'

 required:

 - analyEvent

 AnalyticsEventFilterSubsc:

 type: object

 properties:

 tgtUe:

 $ref: '#/components/schemas/TargetUeId'

 TargetUeId:

 type: object

 properties:

 anyUeInd:

 type: boolean

 gpsi:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 exterGroupId:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/ExternalGroupId'

 UeMobilityExposure:

 type: object

 properties:

 gpsi:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 ueTrajs:

 type: array

 items:

 $ref: '#/components/schemas/UeTrajectoryInfo'

 minItems: 1

 required:

 - ueTrajs

 UeTrajectoryInfo:

 type: object

 properties:

 ts:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 recurringTime:

 $ref: 'TS29122\_CpProvisioning.yaml#/components/schemas/ScheduledCommunicationTime'

 duration:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DurationSec'

 locInfo:

 type: array

 items:

 $ref: '#/components/schemas/UeLocationInfo'

 minItems: 1

 required:

 - duration

 - locInfo

 UeLocationInfo:

 type: object

 properties:

 loc:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

 ratio:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 confidence:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 required:

 - loc

 UeCommunicationExposure:

 type: object

 properties:

 gpsi:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 comms:

 type: array

 items:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/Communication'

 minItems: 1

 required:

 - comms

 AnalyticsRequest:

 type: object

 properties:

 analyEvent:

 $ref: '#/components/schemas/AnalyticsEvent'

 analyEventFilter:

 $ref: '#/components/schemas/AnalyticsEventFilter'

 analyRep:

 $ref: 'TS29520\_Nnwdaf\_AnalyticsInfo.yaml#/components/schemas/AnalyticsReportingRequirement'

 tgtUe:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/TargetUeInformation'

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - analyEvent

 - tgtUe

 - suppFeat

 AnalyticsEventFilter:

 type: object

 properties:

 locArea:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

 maxAnaEntry:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 AnalyticsData:

 type: object

 properties:

 ueMobilityInfos:

 type: array

 items:

 $ref: '#/components/schemas/UeMobilityExposure'

 minItems: 1

 ueCommInfos:

 type: array

 items:

 $ref: '#/components/schemas/UeCommunicationExposure'

 minItems: 1

 abnormalInfos:

 type: array

 items:

 $ref: '#/components/schemas/AbnormalExposure'

 minItems: 1

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - suppFeat

 AbnormalExposure:

 type: object

 properties:

 gpsis:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

 minItems: 1

 excep:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/Exception'

 ratio:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SamplingRatio'

 confidence:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uinteger'

 addtMeasInfo:

 $ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/AdditionalMeasurement'

 required:

 - excep

 AnalyticsEvent:

 anyOf:

 - type: string

 enum:

 - UE\_MOBILITY

 - UE\_COMM

 - ABNORMAL\_BEHAVIOR

 - CONGESTION

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration but is not used to encode

 content defined in the present version of this API.

 description: >

 Possible values are

 - UE\_MOBILITY: The AF requests to be notified about analytics information of UE mobility.

 - UE\_COMM: The AF requests to be notified about analytics information of UE communication.

 - ABNORMAL\_BEHAVIOR: The AF requests to be notified about analytics information of UE’s abnormal behavior.

 - CONGESTION: The AF requests to be notified about analytics information of user data congestion information.

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