**3GPP TSG-SA5 Meeting #158 *S5-247173***

**Orlando, United States, 18th Nov 2024 - 22nd Nov 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  | **28.312** | **CR** | **0256** | **rev** | **1** | **Current version:** | **18.5.0** |  |
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| *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 | **X** | Core Network |  |

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| ***Title:***  | Rel-19 CR TS 28.312 Enhance the use case and solution to support RAN energy saving scenario |
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| ***Source to WG:*** | Huawei, Deutsche Telekom |
| ***Source to TSG:*** | S5 |
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| ***Work item code:*** | DUMMY |  | ***Date:*** | 2024-11-04 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-19 |
|  | *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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | The use case, requirements and solutions for Enhancement of radio network expectation to support RAN energy saving was studied in TR 28.914 and recommended for normative work. So, it proposes to enhance the use case and solution for RAN energy saving. |
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| ***Summary of change:*** | 1. Enhance the use case for Intent containing an expectation for RAN energy saving to support different RAN UE throughput performance for different frequencies or RATs in the same area when perform energy saving activities2. Enhance the RadioNetworkExpectation and generic TargetFulfilmentResult<<dataType>> to support the above use case enhancement. |
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| ***Consequences if not approved:*** |  |
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| ***Clauses affected:*** | 5.1.7.1, 6.2.1.3.8.1, 6.2.2.2, D.5, D.8 |
|  |  |
|  | **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 ...  |
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| ***Other comments:*** | Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1444> at commit a60a1192b2769f2b14b00019c624f2d380dd38dc |
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| ***This CR's revision history:*** | S5-247173 is the revision of S5-246367 |

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| **1st Change** |

### 5.1.7 Intent containing an expectation for RAN energy saving

#### 5.1.7.1 Introduction

Operators are aiming at decreasing power consumption in 5G networks to lower their operational expense with energy saving management solutions. Energy saving is achieved by executing the energy saving actions with suitable parameter configurations, e.g. energy saving state switch, start time and end time, the energy saving thresholds. However, the various combinations of energy saving actions can lead to conflicts. For example, different energy saving actions may be contradictory, or the energy saving actions may conflict with other activities (e.g. network optimization actions). Moreover, it is not straightforward to evaluate the influence on service experience (e.g. UL/DL RAN UE throughput, latency) of energy saving actions beforehand, which makes it difficult to balance the energy saving effect and service experience, for example the energy saving actions may deteriorate the service experience. To avoid affecting the service experience, MnS consumer may express energy saving target with the maximum value of RAN energy consumption in intent expectation, and MnS producer is able to choose an optimal value of RAN energy consumption to save energy as much as possible in the context to satisfy the service experience.

As clause 4.1.1 described, an intent focuses more on describing the "What" needs to be achieved but less on "How" that outcomes should be achieved, which not only relieves the burden of the consumer knowing implementation details but also leaves room to allow the producer to explore alternative options and find optimal solutions. So, introducing the intent approach for energy saving, which can enable the 3GPP management system to analyse and select the optimal balance between the energy saving effect and service experience by utilizing some intelligence mechanisms. In intent driven approach, a MnS consumer expresses intent expectation for RAN energy saving in the specified area (e.g. geographical area) to a MnS producer, which may include the RAN energy saving target (e.g. the maximum value of target RAN energy consumption, reduction radio of energy consumption) and service experience (e.g. RAN UE throughput, latency), as well as the frequencies and RATs to be considered for energy saving. Some contexts for RAN energy saving (e.g. RAN energy saving allowed time (e.g., 1:00 am-5:00 am), RAN energy saving trigger event (e.g. PRB load ratio < 50%)) also can be specified by MnS consumer to provide the conditions to allow corresponding energy saving actions to be triggered to satisfy the energy saving targets. MnS producer analyses and determines the optimal RAN energy saving solution (i.e. a set of energy saving actions) to satisfy MnS consumer's intent expectation for RAN energy saving. MnS producer continuously monitors the RAN energy saving performance (e.g. RAN energy consumption, RAN energy efficiency) and service experience performance (e.g. target average UL/DL RAN UE throughput, target) for the specified area, and decides whether RAN energy saving target is satisfied.

The MnS consumer may want to assure different RAN UE throughput performance for different contexts (including frequencies or rATs) in the same area when perform energy saving activities (e.g., same targets for RAN energy saving). The MnS consumer also needs to receive the target fulfilment result for different RAN UE throughput targets for different contexts (including frequencies or RATs).

MnS producer may report the intent fulfilment information and achieved value for RAN energy saving targets (e.g. RAN energy consumption, RAN energy efficiency) for the specified area to MnS consumer which enables MnS consumer to monitor the intent containing an expectation for RAN energy saving.

#### 5.1.7.2 Requirements

**REQ-IDMS\_ RadioNetworkIntent-CON-9:** The intent driven MnS producer for radio network shall have capabilities enabling MnS consumer to express intent containing an expectation for RAN energy saving for the specified area.

**REQ-IDMS\_RadioNetworkIntent-CON -10:** The intent driven MnS producer for radio network shall have capabilities enabling MnS consumer to obtain intent report information (i.e. fulfilment information, achieved value for corresponding targets) of the intent containing an expectation for RAN energy saving.

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| **2nd Change** |

##### 6.2.1.3.8 TargetFulfilmentResult<<dataType>>

###### 6.2.1.3.8.1 Definition

TargetFulfilmentResult <<dataType>> includes targetFulfilmentInfo and targetAchievedValue for each ExpectationTarget. The targetFulfilmentInfo describes status of fulfilment of an expectationTarget and the related reasons for the infeasible status. The targetAchievedValue describes current performance value for the ExpectationTarget. Different instances of TargetFulfilmentResult can be instantiated for the same targetName but with different targetContexts. For examples, different TargetFulfilmentResult instance for aveDLRANUEThptTarget with different dlFrequencyContexts.

###### 6.2.1.3.8.2 Attributes

The TargetFulfilmentResult includes the following attributes.

Table 6.2.1.3.8.2-1

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| --- | --- | --- | --- | --- | --- |
| Attribute Name | Support Qualifier | isReadable  | isWritable | isInvariant | isNotifyable |
| targetName | M | T | F | F | T |
| targetFulfilmentInfo | M | T | F | F | T |
| targetAchievedValue | O | T | F | F | T |
| targetContexts | O | T | F | F | T |

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| **3rd Change** |

#### 6.2.2.2 Attribute definition

Table 6.2.2.2-1

| **Attribute Name** | **Documentation and Allowed Values** | **Properties** |
| --- | --- | --- |
| coverageAreaPolygonContext | It describes the coverage areas for the RAN SubNetwork that the intent expectation is applied in the form of polygon.CoverageAreaPolygonContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "coverageAreaPolygon"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of GeoArea defined in 3GPP TS 28. 622 [6] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| coverageTACContext | It describes the coverage areas for the RAN SubNetwork that the intent expectation is applied in the form of TAC.CoverageTACContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "coverageTAC"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of TAC defined in 3GPP TS 28. 622 [6] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| dlFrequencyContext | It describes the downlink frequency information (RF reference frequencies and/or the frequency operating band) supported by the RAN SubNetwork that the intent expectation is applied.dLFrequencyContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "dLFrequency"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of Frequency defined in clause 6.2.1.3.13 | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| ulFrequencyContext | It describes the uplink frequency information (RF reference frequencies and/ or the frequency operating band) supported by the RAN SubNetwork that the intent expectation is applied.uLFrequencyContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: uLFrequency"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of Frequency defined in clause 6.2.1.3.13 | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| rATContext | It describes the RAT supported by the RAN SubNetwork that the intent expectation is applied.RATContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "rAT"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of ENUM with allowed value: UTRAN, EUTRAN and NR | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| uEGroupContext | It describes the UE Groups (represented by specific 5QI, specific S-NSSAI, or specific combination of S-NSSAI and 5QI) that the intent expectation is applied.UEGroupContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "UEGroup"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of UEGroup <<dataType>> | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| targetAssuranceTimeContext | It describes the timeWindows (including startTime, endTime) when the targets in the Intent Expectation need to be assured.- contextAttribute: "targetAssuranceTime"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: a list of TimeWindow(s) defined in TS 28.622 [6]. | type: Contextmultiplicity: \*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: True |
| weakRSRPRatioTarget | It describes the downlink weak coverage ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with downlink weak RSRP, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.WeakRSRPRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContext.Following are the allowed values:- targetName: "weakRSRPRatio"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100] %- targetContext: WeakRSRPContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| weakRSRPRatioTarget.weakRSRPContext | It describes the threshold for downlink weak RSRP of the cells (see RSRP measurements in TS 28.552 [6]) of the RAN SubNetwork that the intent expectation is applied.WeakRSRPContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "weakRSRPThreshold"- contextCondition: "IS\_LESS\_THAN"- contextValueRange: Float | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowSINRRatioTarget | It describes the low SINR ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with low SINR, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.LowSINRRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContxt.Following are the allowed values:- targetName: "lowSINRRatio"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100]- targetContext: LowSINRContext | type:ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowSINRRatioTarget.lowSINRContext | It describes the threshold for low SINR of the cells (see SINR measurements in TS 28.552 [6]) of the RAN SubNetwork that the intent expectation is applied.LowSINRContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "lowSINRThreshold"- contextCondition: "IS\_LESS\_THAN"- contextValueRange: integer | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| aveULRANUEThptTarget | It describes the average UL RAN UE throughput target for RAN SubNetwork (see UL RAN UE throughput for a sub-network in TS 28.554[11]) that the intent expectation is applied.AveULRANUEThptTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "aveULRANUEThpt"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: integer- targetContext: ulFrequencyContext or rATContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| aveDLRANUEThptTarget | It describes the average DL RAN UE throughput target for RAN SubNetwork (see DL RAN UE throughput for a sub-network in TS 28.554[11]) that the intent expectation is applied.AveDLRANUEThptTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "aveDLRANUEThpt"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: integer- targetContext: dlFrequencyContext or rATContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowULRANUEThptRatioTarget | It describes the low UL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with low UL RAN UE throughput, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.LowULRANUEThptRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContext.Following are the allowed values:- targetName: "lowULRANUEThptRatio"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100] %- targetContext: LowULRANUEThptContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowULRANUEThptRatioTarget.lowULRANUEThptContext | It describes the threshold for the low UL RAN UE throughput cells (see average UL RAN UE throughput in gNB and distribution of UL UE throughput in gNB in TS 28.552[6]) of the RAN SubNetwork that the intent expectation is applied LowULRANUEThptContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "lowULRANUEThptThreshold"- contextCondition: "IS\_LESS\_THAN"- contextValueRange: Float | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowDLRANUEThptRatioTarget | It describes the low DL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with low DL RAN UE throughput, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.LowDLRANUEThptRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContext.Following are the allowed values:- targetName: "lowDLRANUEThptRatio"- targetCondition: "IS\_LESS\_THAN "- targetValueRange: integer with allowed value [0,100]- targetContext: LowDLRANUEThptContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| lowDLRANUEThptRatioTarget.lowDLRANUEThptContext | It describes the threshold for the low DL RAN UE throughput cells (see average DL RAN UE throughput in gNB and distribution of DL UE throughput in gNB in TS 28.552[6]) of the RAN SubNetwork that the intent expectation is applied.LowDLRANUEThptContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "lowDLRANUEThptThreshold"- contextCondition: "IS\_LESS\_THAN"- contextValueRange: Float | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| nfTypeContext | It identifies the types of NF supported by the 5GC SubNetwork that the intent expectation is applied.nfTypeContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " nfType "- contextCondition:" IS\_ALL\_OF "- contextValueRange: a list of ENUM with allowed value: Enumeration NFType in 3GPP TS 29.510[13] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| nfInstanceLocationContext | It describes the location of NF instance supported by the 5GC SubNetwork that the intent expectation is applied.nfInstancelocationContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " nfInstanceLocation "- contextCondition:” IS\_ALL\_OF "- contextValueRange: a list of string.See Locality in TS 29.510 [13] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| taiContext | It describes the tracking area Identifiers supported by the 5GC SubNetwork that the intent expectation is applied.taiContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "tai"- contextCondition:" IS\_ALL\_OF "- contextValueRange: a list of tai defined in TS 28.622 [6] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| maxNumberofPDUsessionsTarget | It describes the maximum number of PDU sessions for 5GC SubNetwork supporting that the intent expectation is applied. For details, see maxNumberofPDUsessions in clause 5.3.1.2 in TS 28.552 [12]maxNumberofPDUsessionsTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "maxNumberofPDUsessions"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: integer- targetContext: 5GSessionContext. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| maxNumberofPDUsessionsTarget.5GSessionContext | It describes the maximum supported 5G PDU session of the 5GC SubNetwork related to the intent expectation.5GSessionContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "5GSession"- contextCondition: "IS\_ LESS\_THAN"- contextValueRange: integer | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| maxNumberofRegisteredsubscribersTarget | It describes the maximum number of Registered subscribers for 5GC SubNetwork supporting that the intent expectation is applied. For details, see maxNumberofRegisteredsubscribers in clause 5.6.2 in TS 28.552 [12]maxNumberofRegisteredsubscribersTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "maxNumberofRegisteredsubscribers"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| highUlPrbLoadRatioTarget | It describes the high UL PRB load ratio target (as percentage) for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with high UL PRB load, and the denominator is the total number of cells of the RAN Subnetwork in the specified area. HighUlPrbLoadRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition,targetValueRange and targetContext.Following are the allowed values:- targetName: "highUlPrbLoadRatio"- targetCondition: "IS\_LESS\_THAN "- targetValueRange: integer with allowed value [0,100] %- targetContext: HighUlPrbLoadContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| highUlPrbLoadRatioTarget.HighUlPrbLoadContext | It describes the threshold for high uplink PRB load (i.e. UL Total PRB Usage in TS 28.552 [12] to represent the percentage of UL PRBs used) of the cells of the RAN SubNetwork in the specified area that the intent expectation is applied.HighUlPrbLoadContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "HighUlPrbLoad"- contextCondition: "IS\_GREATER\_THAN"- contextValueRange: integer with allowed value [0,100] % | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| highDlPrbLoadRatioTarget | It describes the high DL PRB load ratio target (as percentage) for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with high DL PRB load, and the denominator is the total number of cells of the RAN Subnetwork in the specified area. HighDlPrbLoadRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition, targetValueRange and targetContext.Following are the allowed values:- targetName: "highDlPrbLoadRatio"- targetCondition: "IS\_LESS\_THAN "- targetValueRange: integer with allowed value [0,100] %- targetContext: HighDlPrbLoadContext | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| highDlPrbLoadRatioTarget.HighDlPrbLoadContext | It describes the threshold for high downlink PRB load (i.e. DL Total PRB Usage in TS 28.552 [12] to represent the percentage of DL PRBs used) of the cells of the RAN SubNetwork in the specified area that the intent expectation is applied. HighDlPrbLoadContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "HighDlPrbLoad"- contextCondition: "IS\_GREATER\_THAN"- contextValueRange: integer with allowed value [0,100] % | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| aveUlPrbLoadTarget | It describes the average uplink PRB load target (i.e. UL Total PRB Usage in TS 28.552 [12] to represent the percentage of UL PRBs used) of the cells of the RAN SubNetwork that the intent expectation is applied.AveULPrbLoadTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "aveULPrbLoad"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100] % | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| aveDlPrbLoadTarget | It describes the average dowlink PRB load (i.e. DL Total PRB Usage in TS 28.552 [12] to represent the percentage of DL PRBs used) target for RAN SubNetwork that the intent expectation is applied.AveDLPrbLoadTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "aveDLPrbLoad"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: integer with allowed value [0,100] % | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| rANEnergyConsumptionTarget | It describes the RAN energy consumption target for RAN SubNetwork that the intent expectation is applied. The definition for RAN energy consumption see ECNG-RAN in clause 6.7.3.4.1 in TS 28.554 [11].RANEnergyConsumptionTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "rANEnergyConsumption"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| rANEnergyEfficiencyTarget | It describes the RAN energy efficiency target for RAN SubNetwork that the intent expectation is applied. The unit of this target is bit/J. The definition for RAN energy efficiency target for RAN SubNetwork see EEMN,DV in clause 6.7.1.1 in TS 28.554 [11]RANEnergyEfficiencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: " rANEnergyEfficiency "- targetCondition: " IS\_GREATER\_THAN"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| serviceStartTimeContext | This describes the start time at which the service shall be available. This contributes to the selection of the appropriate edge data network to be used for service deployment.Following are the allowed values:- contextAttribute: "serviceStartTime"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: DateTime | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| serviceEndTimeContext | This describes the end time after which the service shall not be available. This contributes to the selection of the appropriate edge data network to be used for service deployment.Following are the allowed values:- contextAttribute: "serviceEndTime"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: DateTime | type:Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| edgeIdentificationIdContext | This identifies the edge network where the service needs to be deployed. For details see EDNidentifier defined in TS 28.538 [9]. This should be used when the edge identification is known to the consumerFollowing are the allowed values:- contextAttribute: "edgeIdentificationId"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: String | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| edgeIdentificationLocContext | This identifies the location where the service needs to be deployed. This should be used when the edge identification is not known to the consumerFollowing are the allowed values:- contextAttribute: "edgeIdentificationLoc"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: GeoCoordinate dfined in TS 28.622 [6].  | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| coverageAreaTAContext | It describes Tracking Coverage Areas for service supporting that the intent expectation is applied.coverageAreaTAContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "coverageAreaTA"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of TAC defined in 3GPP TS 28.622 [6] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. dlThptPerUETarget | It describes the DL throughput target by the per UE for the edge service Supporting that the intent expectation is applied. For details see dlThptPerUE defined in clause 6.3.1 of TS 28.541 [5].DLThptperUETarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange:- targetName: "DLThptperUE"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: Integer.  | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. ulThptPerUETarget | It describes the UL throughput target by the per UE for the edge service Supporting that the intent expectation is applied. For details see ulThptPerUE defined in clause 6.3.1 of TS 28.541 [5].ULThptperUETarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.- targetName: "ulThptperUE"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. dLLatencyTarget | It describes the DL latency target for the edge service Supporting that the intent expectation is applied.DLLatencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange. For details see attribute dlLatency defined in clause 6.3.1 of TS 28.541 [5].- targetName: "dLLatency"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. uLLatencyTarget | It describes the UL latency target for the edge service Supporting that the intent expectation is applied. For details see attribute ulLatency defined in clause 6.3.1 of TS 28.541 [5].uLLatencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.- targetName: "uLLatency"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. maxNumberofUEsTarget | It describes the the number of UEs for edge service supporting that the intent expectation is applied. For details see attribute maxNumberofUE defined in clause 6.3.1 of of TS 28.541 [5].maxNumberofUEsContext is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "maxNumberofUEs"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. activityFactorTarget | It describes the percentage value of the amount of simultaneous active UEs to the total number of UEs where active means the UEs are exchanging data with the network for service supporting that the intent expectation is applied. For details see activityFactor in clause 6.3.1 in TS 28.541 [5.]activityFactorTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: " activityFactor "- targetCondition: " IS\_EQUAL\_TO"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. uESpeedTarget | It describes the speed (in km/hour) supportedfor edge service supporting that the intent expectation is applied. For details see uESpeed in clause 6.3.1 in TS 28.541[5].uESpeedTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "uESpeed"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: Integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. uEMobilityLevelContext | It describes the mobility level of UE for edge service supporting that the intent expectation is applied. For details see uEMobilityLevel in clause 6.3.1 in TS 28.541 [5.]uEMobilityLevelContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " uEMobilityLevel "- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: ENUM. | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| EdgeServiceSupport Expectation. resourceSharingLevelContext | It describes the resource sharing level for which the intent expectation is applied. For details see resourceSharinglevel in clause 6.3.1 in TS 28.541 [5].resourceSharingLevelContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "resourceSharingLevel"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: ENUM | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.coverageAreaPolygonContext | It describes the coverage areas for the Radio Service that the intent expectation is applied in the form of polygon.CoverageAreaPolygonContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "coverageAreaPolygon"- contextCondition: "IS\_ALL\_OF"- contextValueRange: a list of CoverageArea defined in 3GPP TS 28.541 [5]. | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.serviceTypeContext | It describes the service type for the Radio Service that the intent expectation is applied. For details see sST in clause 6.4.1 in TS 28.541 [5].ServiceTypeContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: "serviceType"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: string | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.dlThptPerUETarget | It describes the DL throughput target per UE for the Radio Service that the intent expectation is applied. For details see dlThptPerUE defined in clause 6.3.1 of TS 28.541 [5].DLThptperUETarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange:- targetName: "DLThptperUE"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: Integer.  | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.ulThptPerUETarget | It describes the UL throughput target per UE for the Radio Service that the intent expectation is applied. For details see ulThptPerUE defined in clause 6.3.1 of TS 28.541 [5].ULThptperUETarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.- targetName: "ulThptperUE"- targetCondition: "IS\_GREATER\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioServiceExpectation.dLLatencyTarget | It describes the DL latency target for the Radio Service that the intent expectation is applied.DLLatencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange. For details see attribute dlLatency defined in clause 6.3.1 of TS 28.541 [5].- targetName: "dLLatency"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| RadioService. ExpectationuLLatencyTarget | It describes the UL latency target for the Radio Service that the intent expectation is applied. For details see attribute ulLatency defined in clause 6.3.1 of TS 28.541 [5].uLLatencyTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.- targetName: "uLLatency"- targetCondition: "IS\_LESS\_THAN"- targetValueRange: Integer. | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| servingScopeContext | It describes the served area(s) of the 5GC NF instance supported by the 5GC SubNetwork that the intent expectation is applied. For detail, see servingScope in TS 29.510[13].servingScopeContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " servingScope "- contextCondition:” IS\_ALL\_OF "- contextValueRange: a list of string.  | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| dnnContext | It describes the DNN of the 5GC NF instance supported by the 5GC SubNetwork that the intent expectation is applied.dnnContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.Following are the allowed values:- contextAttribute: " dnn "- contextCondition:” IS\_ALL\_OF "- contextValueRange: a list of string as specified in 3GPP TS 23.003 [15] | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| incomingDataTarget | It describes the maximum incoming data packets for 5GC SubNetwork related to the intent expectation. For details, see N6 incoming link usage measurement in clause 5.4.2.1 in TS 28.552 [12]incomingDataTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "incomingData"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| outgoingDataTarget | It describes the maximum outgoing data packets for 5GC SubNetwork related to the intent expectation. For details, see N6 outgoing link usage measurement in clause 5.4.2.2 in TS 28.552 [12]outgoingDataTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.Following are the allowed values:- targetName: "outgoingData"- targetCondition: " IS\_LESS\_THAN"- targetValueRange: integer | type: ExpectationTargetmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| startTimeContext | This describes the start time at which the expected result of the expectation shall be available. Following are the allowed values:- contextAttribute: "startTime"- contextCondition: "IS\_EQUAL\_TO"- contextValueRange: DateTime | type: Contextmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |

|  |
| --- |
| **4th Change** |

# D.5 YAML document example for Intent containing an expectation on RAN energy saving

Intent:

 Id: 'Intent\_5'

 userLabel: 'RAN\_Energy\_Saving'

 intentExpectation:

 - expectationId: '1'

 expectationVerb: 'Ensure'

 expectationObjects:

 - objectInstance: 'SubNetwork\_1'

 objectContexts:

 - contextAttribute: 'CoverageAreaPolygon'

 contextCondition: 'IS\_ALL\_OF'

 contextValueRange:

 - convexGeoPolygon:

 - latitude: '31.2696'

 longitude: '121.6322'

 - latitude: '31.2668'

 longitude: '121.6323'

 - latitude: '31.2669'

 longitude: '121.6412'

 - latitude: '31.2696'

 longitude: '121.6410'

 - contextAttribute: 'PLMN'

 contextCondition: 'IS\_ALL\_OF'

 contextValueRange:

 - '46000'

 - contextAttribute: 'DlFrequency'

 contextCondition: 'IS\_ALL\_OF'

 contextValueRange:

 - arfcn: '384000'

 - contextAttribute: 'RAT'

 contextCondition: 'IS\_ALL\_OF'

 contextValueRange:

 - 'NR'

 - 'EUTRAN'

 - contextAttribute: 'TargetAssuranceTime'

 contextCondition: 'IS\_EQUAL\_TO'

 contextValueRange:

 - startTime: '2023-10-27-22-00-00'

 - endTime: '2023-10-28-06-00-00'

 expectationTargets:

 - targetName: 'RANEnergyConsumption'

 targetCondition: 'IS\_LESS\_THAN'

 targetValueRange: '1000'

 - targetName: 'RANEnergyEfficiency'

 targetCondition: 'IS\_GREATER\_THAN'

 targetValueRange: '400000'

 - targetName: 'AveULRANUEThpt'

 targetCondition: 'IS\_GREATER\_THAN'

 targetValueRange: '100' - targetName: 'AveDLRANUEThpt'

 targetCondition: 'IS\_GREATER\_THAN'

 targetValueRange: '300'

 targetContexts:

 - contextAttribute: 'rAT'

 contextCondition: 'IS\_ALL\_OF'

 contextValueRange:

 - NR

 - targetName: 'AveDLRANUEThpt'

 targetCondition: 'IS\_GREATER\_THAN'

 targetValueRange: '100'

 targetContexts:

 - contextAttribute: 'rAT'

 contextCondition: 'IS\_ALL\_OF'

 contextValueRange:

 - EUTRAN

 intentPriority: '6'

 observationPeriod: '60'

 intentReportReference: 'IntentReport\_5'

|  |
| --- |
| **5th Change** |

# D.8 YAML document example for Intent report instance

IntentReport:

 id: 'RAN\_Energy\_Saving\_Report'

 intentFulfilmentReport:

 intentFulfilmentInfo:

 fulfilmentStatus: 'NOTFULFILLED'

 notFulfilledState: 'SUSPENDED'

 notFulfilledReasons:

 - 'Target\_conflict\_detected'

 expectationFulfilmentResults:

 - expectationId: '1'

 expectationFulfilmentInfo:

 fulfilmentStatus: 'NOTFULFILLED'

 targetFulfilmentResults:

 - targetName: 'RANEnergyConsumption'

 targetFulfilmentInfo:

 fulfilmentStatus: 'FULFILLED'

 targetAchievedValue: '900'

 - targetName: 'RANEnergyEfficiencyTarget'

 targetFulfilmentInfo:

 fulfilmentStatus: 'FULFILLED'

 targetAchievedValue: '410000'

 - targetName: 'AveULRANUEThpt'

 targetFulfilmentInfo:

 fulfilmentStatus: 'FULFILLED'

 targetAchievedValue: '100'

 - targetName: 'AveDLRANUEThpt'

 targetFulfilmentInfo:

 fulfilmentStatus: 'NOTFULFILLED'

 targetAchievedValue: '200'

 targetContexts:

 - contextAttribute: 'rAT'

 contextCondition: 'IS\_ALL\_OF'

 contextValueRange:

 - NR

 - targetName: 'AveDLRANUEThpt'

 targetFulfilmentInfo:

 fulfilmentStatus: 'FULFILLED'

 targetAchievedValue: '200'

 targetContexts:

 - contextAttribute: 'rAT'

 contextCondition: 'IS\_ALL\_OF'

 contextValueRange:

 - EUTRAN

 intentConflictReports:

 - conflictType: 'TARGET\_CONFLICT'

 conflictingTarget: 'RANEnergyConsumption'

 recommendedSolutions: 'MODIFY'

 - conflictType: 'TARGET\_CONFLICT'

 conflictingTarget: 'AveDLRANUEThpt'

 recommendedSolutions: 'MODIFY'

 intentFeasibilityCheckReport:

 feasibilityCheckResult: 'FEASIBLE'

 lastUpdatedTime: '2023-09-15-14-37-50'

 intentReference: 'RAN\_Energy\_Saving'

|  |
| --- |
| **6th Change** |

Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1444> at commit a60a1192b2769f2b14b00019c624f2d380dd38dc

\*\*\* START OF CHANGE 1 \*\*\*

\*\*\* OpenAPI/TS28312\_IntentExpectations.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

 title: Scenario specific Intent Expectations

 version: 18.4.0

 description: >-

 OAS 3.0.1 definition of scenario specific Intent Expectations

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externalDocs:

 description: 3GPP TS 28.312; Intent driven management services for mobile networks

 url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.312/

paths: {}

components:

 schemas:

 #-------Definition of the Scenario specific IntentExpectation dataType ----------#

 RadioNetworkExpectation:

 description: >-

 This data type is the "IntentExpectation" data type with specialisations to represent MnS consumer's expectations for radio network delivering and performance assurance

 type: object

 properties:

 expectationId:

 type: string

 expectationVerb:

 $ref: "TS28312\_IntentNrm.yaml#/components/schemas/ExpectationVerb"

 expectationObject:

 $ref: "#/components/schemas/RadioNetworkExpectationObject"

 expectationTargets:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/WeakRSRPRatioTarget'

 - $ref: '#/components/schemas/LowSINRRatioTarget'

 - $ref: '#/components/schemas/AveULRANUEThptTarget'

 - $ref: '#/components/schemas/AveDLRANUEThptTarget'

 - $ref: '#/components/schemas/LowULRANUEThptRatioTarget'

 - $ref: '#/components/schemas/LowDLRANUEThptRatioTarget'

 - $ref: '#/components/schemas/HighULPrbLoadRatioTarget'

 - $ref: '#/components/schemas/HighDLPrbLoadRatioTarget'

 - $ref: '#/components/schemas/AveULPrbLoadTarget'

 - $ref: '#/components/schemas/AveDLPrbLoadTarget'

 - $ref: "#/components/schemas/RANEnergyConsumptionTarget"

 - $ref: "#/components/schemas/RANEnergyEfficiencyTarget"

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/ExpectationTarget'

 expectationContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/TargetAssuranceTimeContext'

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 required:

 - expectationId

 RadioServiceExpectation:

 description: >-

 This data type is the "IntentExpectation" data type with specialisations to represent MnS consumer's expectations for radio service delivering

 type: object

 properties:

 expectationId:

 type: string

 expectationVerb:

 $ref: "TS28312\_IntentNrm.yaml#/components/schemas/ExpectationVerb"

 expectationObject:

 $ref: "#/components/schemas/RadioServiceExpectationObject"

 expectationTargets:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/DLLatencyTarget'

 - $ref: '#/components/schemas/ULLatencyTarget'

 - $ref: '#/components/schemas/DLThptPerUETarget'

 - $ref: '#/components/schemas/ULThptPerUETarget'

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/ExpectationTarget'

 expectationContexts:

 type: array

 uniqueItems: true

 items:

 $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 required:

 - expectationId

 EdgeServiceSupportExpectation:

 description: >-

 This data type is the "IntentExpectation" data type with specialisations to represent MnS consumer's expectations for service deployment

 type: object

 properties:

 expectationId:

 type: string

 expectationVerb:

 $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/ExpectationVerb'

 expectationObject:

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

 expectationTargets:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/DLThptPerUETarget'

 - $ref: '#/components/schemas/ULThptPerUETarget'

 - $ref: '#/components/schemas/DLLatencyTarget'

 - $ref: '#/components/schemas/ULLatencyTarget'

 - $ref: '#/components/schemas/MaxNumberofUEsTarget'

 - $ref: '#/components/schemas/ActivityFactorTarget'

 - $ref: '#/components/schemas/UESpeedTarget'

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/ExpectationTarget'

 expectationContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/ServiceStartTimeContext'

 - $ref: '#/components/schemas/ServiceEndTimeContext'

 - $ref: '#/components/schemas/UEMobilityLevelContext'

 - $ref: '#/components/schemas/ResourceSharingLevelContext'

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 required:

 - expectationId

 5GCNetworkExpectation:

 description: >-

 This data type is the "IntentExpectation" data type with specialisations to represent MnS consumer's expectations for 5GC network delivering

 type: object

 properties:

 expectationId:

 type: string

 expectationVerb:

 $ref: "TS28312\_IntentNrm.yaml#/components/schemas/ExpectationVerb"

 expectationObjects:

 type: array

 uniqueItems: true

 items:

 $ref: "#/components/schemas/5GCNetworkExpectationObject"

 expectationTargets:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: "#/components/schemas/MaxNumberofPDUsessionsTarget"

 - $ref: "#/components/schemas/MaxNumberofRegisteredsubscribersTarget"

 - $ref: "#/components/schemas/IncomingDataTarget"

 - $ref: "#/components/schemas/OutgoingDataTarget"

 - $ref: "TS28312\_IntentNrm.yaml#/components/schemas/ExpectationTarget"

 expectationContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/StartTimeContext'

 - $ref: '#/components/schemas/ResourceSharingLevelContext'

 - $ref: "TS28312\_IntentNrm.yaml#/components/schemas/Context"

 required:

 - expectationId

 #-------Definition of the IntentExpectation dataType ----------#

 #-------Definition of the scenario specific ExpectationObject dataType ----------#

 RadioNetworkExpectationObject:

 description: >-

 This data type is the "ExpectationObject" data type with specialisations for RadioNetworkExpectation

 type: object

 properties:

 objectType:

 type: string

 enum:

 - RAN\_SubNetwork

 objectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 objectContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/CoverageAreaPolygonContext'

 - $ref: '#/components/schemas/CoverageTACContext'

 - $ref: '#/components/schemas/PLMNContext'

 - $ref: '#/components/schemas/DlFrequencyContext'

 - $ref: '#/components/schemas/UlFrequencyContext'

 - $ref: '#/components/schemas/RATContext'

 - $ref: "#/components/schemas/UEGroupContext"

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 RadioServiceExpectationObject:

 description: >-

 This data type is the "ExpectationObject" data type with specialisations for RadioServicekExpectation

 type: object

 properties:

 objectType:

 type: string

 enum:

 - Radio\_Service

 objectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 objectContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/CoverageAreaPolygonContext'

 - $ref: '#/components/schemas/ServiceTypeContext'

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 EdgeServiceSupportExpectationObject:

 description: >-

 This data type is the "ExpectationObject" data type with specialisations for EdgeServiceSupportExpectation

 type: object

 properties:

 objectType:

 type: string

 enum:

 - EdgeService\_Support #value for Edge Service Support Expectation--#

 objectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 objectContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/EdgeIdentificationIdContext'

 - $ref: '#/components/schemas/EdgeIdentificationLocContext'

 - $ref: '#/components/schemas/CoverageAreaTAContext'

 - $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Context'

 5GCNetworkExpectationObject:

 description: >-

 This data type is the "ExpectationObject" data type with specialisations for 5GCNetworkExpectation

 type: object

 properties:

 objectType:

 type: string

 enum:

 - 5GC\_SubNetwork #value for 5GC Network Expectation--#

 objectInstance:

 $ref: "TS28623\_ComDefs.yaml#/components/schemas/Dn"

 objectContexts:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: "#/components/schemas/NfTypeContext"

 - $ref: "#/components/schemas/NfInstanceLocationContext"

 - $ref: "#/components/schemas/PLMNContext"

 - $ref: "#/components/schemas/TaiContext"

 - $ref: "#/components/schemas/ServingScopeContext"

 - $ref: "#/components/schemas/DnnContext"

 - $ref: "TS28312\_IntentNrm.yaml#/components/schemas/Context"

 #-------Definition of the ExpectationObject dataType ----------#

 #-------Definition of the Scenario specific ExpectationTarget dataType----------#

 WeakRSRPRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for WeakRSRPRatioTarget. It describes

 the downlink weak coverage ratio target for the RAN SubNetwork that the intent expectation is applied.

 The numerator is the number of the cells with downlink weak RSRP, and the denominator is the total number

 of cells of the RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - WeakRSRPRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 WeakRSRPContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for WeakRSRPContext. It describes the threshold

 for downlink weak RSRP of the cells (see RSRP measurements in TS 28.552 [6]) of the RAN SubNetwork that the intent

 expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - WeakRSRPThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: number

 LowSINRRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for LowSINRatioTarget.It describes the low SINR

 ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the cells with

 low SINR, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - LowSINRRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 LowSINRContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for LowSINRContext.It describes the threshold for

 low SINR of the cells (see SINR measurements in TS 28.552 [6]) of the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - LowSINRThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: integer

 AveULRANUEThptTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for AveULRANUEThptTarget.It describes the average

 UL RAN UE throughput target for RAN SubNetwork (see UL RAN UE throughput for a sub-network in TS 28.554[11]) that the intent

 expectation is applied.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - AveULRANUEThpt

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 type: integer

 targetContexts:

 type: array

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/UlFrequencyContext'

 - $ref: '#/components/schemas/RATContext'

 AveDLRANUEThptTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for AveDLRANUEThptTarget.It describes the average

 DL RAN UE throughput target for RAN SubNetwork (see DL RAN UE throughput for a sub-network in TS 28.554[11]) that the intent

 expectation is applied.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - AveDLRANUEThpt

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 type: integer

 targetContexts:

 type: array

 items:

 type: object

 oneOf:

 - $ref: '#/components/schemas/DlFrequencyContext'

 - $ref: '#/components/schemas/RATContext'

 LowULRANUEThptRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for LowULRANUEThptRatioTarget.It describes the low

 UL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied. The numerator is the number

 of the cells with low UL RAN UE throughput, and the denominator is the total number of cells of the RAN Subnetwork in the

 specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - LowULRANUEThptRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 LowULRANUEThptContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for LowULRANUEThptContext.It describes the threshold

 for the low UL RAN UE throughput cells (see average UL RAN UE throughput in gNB and distribution of UL UE throughput in gNB

 in TS 28.552[6]) of the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - LowULRANUEThptThreshold

 contextCondition:

 type: string

 enum:

 - Is\_less\_than

 contextValueRange:

 type: number

 LowDLRANUEThptRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for LowDLRANUEThptRatioTarget. It describes

 the low DL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied.The numerator

 is the number of the cells with low DL RAN UE throughput, and the denominator is the total number of cells of the

 RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - LowDLRANUEThptRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 LowDLRANUEThptContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for LowDLRANUEThptContext.It describes the threshold

 for the low DL RAN UE throughput cells ((see average DL RAN UE throughput in gNB and distribution of DL UE throughput in gNB

 in TS 28.552[6]) ) of the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - LowDLRANUEThptThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: number

 HighULPrbLoadRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for HighULPrbLoadRatioTarget. It describes the high UL

 PRB load ratio target (as percentage) for the RAN SubNetwork that the intent expectation is applied. The numerator is the number

 of the cells with high UL PRB load, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - HighULPrbLoadRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 HighULPrbLoadContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for HighULPrbLoadContext.It describes the threshold for high

 uplink PRB load (i.e. UL Total PRB Usage in TS 28.552 [12] to represent the percentage of UL PRBs used) of the cells of the RAN

 SubNetwork in the specified area that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - HighULPrbLoadThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: integer

 minimum: 0

 maximum: 100

 HighDLPrbLoadRatioTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for HighDLPrbLoadRatioTarget.It describes the high DL PRB

 load ratio target (as percentage) for the RAN SubNetwork that the intent expectation is applied. The numerator is the number of the

 cells with high DL PRB load, and the denominator is the total number of cells of the RAN Subnetwork in the specified area.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - HighDLPrbLoadRatio

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 targetContexts:

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

 HighDLPrbLoadContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for HighDLPrbLoadContext.It describes the threshold for high downlink

 PRB load (i.e. DL Total PRB Usage in TS 28.552 [12] to represent the percentage of DL PRBs used) of the cells of the RAN SubNetwork in the

 specified area that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - HighDLPrbLoadThreshold

 contextCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 contextValueRange:

 type: integer

 minimum: 0

 maximum: 100

 AveULPrbLoadTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for AveULPrbLoadTarget.It describes the average uplink PRB load target

 (i.e. UL Total PRB Usage in TS 28.552 [12] to represent the percentage of UL PRBs used) of the cells of the RAN SubNetwork that the intent

 expectation is applied.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - AveULPrbLoad

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 AveDLPrbLoadTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for AveDLPrbLoadTarget.It describes the average dowlink PRB load

 (i.e. DL Total PRB Usage in TS 28.552 [12] to represent the percentage of DL PRBs used) target for RAN SubNetwork that the intent expectation

 is applied.

 type: object

 properties:

 targetName:

 type: string

 enum:

 - AveDLPrbLoad

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 minimum: 0

 maximum: 100

 RANEnergyConsumptionTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for RANEnergyConsumptionTarget.It describes the RAN energy consumption

 target for RAN SubNetwork that the intent expectation is applied. The definition for RAN energy consumption see ECNG-RAN in clause 6.7.3.4.1 in

 TS 28.554 [11].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - RANEnergyConsumption

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 RANEnergyEfficiencyTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for RANEnergyEfficiencyTarget.It describes the RAN energy efficiency target

 for RAN SubNetwork that the intent expectation is applied. The unit of this target is bit/J. The definition for RAN energy efficiency target for RAN

 SubNetwork see EEMN,DV in clause 6.7.1.1 in TS 28.554 [11].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - RANEnergyEfficiency

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 type: integer

 DLThptPerUETarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for DLThptPerUETarget. It describes the DL throughput target by the per UE for the

 edge service supporting or radio servicde that the intent expectation is applied. For details see dlThptPerUE defined in clause 6.3.1 of TS 28.541 [5].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - DlThptPerUE

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 $ref: 'TS28541\_SliceNrm.yaml#/components/schemas/XLThpt'

 ULThptPerUETarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for ULThptPerUETarget.It describes the UL throughput target by the per UE for the edge

 service supporting or radio service that the intent expectation is applied. For details see ulThptPerUE defined in clause 6.3.1 of TS 28.541 [5].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - UlThptPerUE

 targetCondition:

 type: string

 enum:

 - IS\_GREATER\_THAN

 targetValueRange:

 $ref: 'TS28541\_SliceNrm.yaml#/components/schemas/XLThpt'

 DLLatencyTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for DLLatencyTarget.It describes the DL latency target for the edge service supporting or radio service

 that the intent expectation is applied

 type: object

 properties:

 targetName:

 type: string

 enum:

 - DlLatency

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 ULLatencyTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for ULLatencyTarget. It describes the UL latency target for the edge service supporting or radioService

 that the intent expectation is applied. For details see attribute ulLatency defined in clause 6.3.1 of TS 28.541 [5]

 type: object

 properties:

 targetName:

 type: string

 enum:

 - UlLatency

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 MaxNumberofUEsTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for MaxNumberofUEsTarget.It describes the the number of UEs for edge service supporting

 that the intent expectation is applied. For details see attribute maxNumberofUE defined in clause 6.3.1 of of TS 28.541 [5]

 type: object

 properties:

 targetName:

 type: string

 enum:

 - maxNumberofUEs

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 ActivityFactorTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for ActivityFactorTarget.It describes the percentage value of the amount of simultaneous

 active UEs to the total number of UEs where active means the UEs are exchanging data with the edge service supporting that the intent expectation is applied.

 For details see activityFactor in clause 6.3.1 in TS 28.541 [5].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - activityFactor

 targetCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 targetValueRange:

 type: integer

 UESpeedTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for UESpeedTarget.It describes the speed (in km/hour) supported for edge service supporting

 that the intent expectation is applied. For details see uESpeed in clause 6.3.1 in TS 28.541[5].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - uESpeed

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 MaxNumberofPDUsessionsTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for MaxNumberofPDUsessionsTarget.It describes the maximum number of PDU sessions for 5GC

 SubNetwork supporting that the intent expectation is applied. For details, see maxNumberofPDUsessions in clause 5.3.1.2 in TS 28.552 [12].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - MaxNumberofPDUsessions

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 targetContexts:

 $ref: '#/components/schemas/5GSessionContext'

 5GSessionContext:

 description: >-

 This data type is the "TargetContext" data type with specialisations for 5GSessionContext.It describes the maximum supported 5G PDU session of the 5GC SubNetwork

 related to the intent expectation.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - 5GSession

 contextCondition:

 type: string

 enum:

 - IS\_less\_THAN

 contextValueRange:

 type: integer

 MaxNumberofRegisteredsubscribersTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for MaxNumberofRegisteredsubscribersTarget.It describes the maximum number of Registered

 subscribers for 5GC SubNetwork supporting that the intent expectation is applied. For details, see maxNumberofRegisteredsubscribers in clause 5.6.2 in TS 28.552 [12].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - MaxNumberofRegisteredsubscribers

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 IncomingDataTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for IncomingDataTarget.It describes the maximum incoming data packets for 5GC SubNetwork

 related to the intent expectation. For details, see N6 incoming link usage measurement in clause 5.4.2.1 in TS 28.552 [12].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - IncomingData

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 OutgoingDataTarget:

 description: >-

 This data type is the "ExpectationTarget" data type with specialisations for OutgoingDataTarget.It describes the maximum outgoing data packets for 5GC SubNetwork

 related to the intent expectation. For details, see N6 outgoing link usage measurement in clause 5.4.2.2 in TS 28.552 [12].

 type: object

 properties:

 targetName:

 type: string

 enum:

 - OutgoingData

 targetCondition:

 type: string

 enum:

 - IS\_LESS\_THAN

 targetValueRange:

 type: integer

 #-------Definition of the concrete ExpectationTarget dataType----------#

 #-------Definition of the concrete ObjectTarget dataType----------------#

 CoverageAreaPolygonContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for CoverageAreaPolygonContext.It describes the coverage areas for the RAN SubNetwork that the

 intent expectation is applied in the form of polygon.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - CoverageAreaPolygon

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/GeoArea'

 CoverageTACContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for CoverageTACContext.It describes the coverage areas for the RAN SubNetwork that the intent

 expectation is applied in the form of TAC.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - CoverageAreaTac

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28623\_ComDefs.yaml#/components/schemas/Tac"

 PLMNContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for PLMNContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - PLMN

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/PlmnId'

 DlFrequencyContext:

 description: >-

 This data type is the "Context" data type with specialisations for Object context "DLFrequencyContext". It describes the downlink frequency information (RF reference

 frequencies and/ or the frequency operating band) supported by the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - DlFrequency

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Frequency'

 UlFrequencyContext:

 description: >-

 This data type is the "Context" data type with specialisations for Object context "ULFrequencyContext".It describes the uplink frequency information (RF reference

 frequencies and/ or the frequency operating band) supported by the RAN SubNetwork that the intent expectation is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - UlFrequency

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: 'TS28312\_IntentNrm.yaml#/components/schemas/Frequency'

 RATContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for RATContext.It describes the RAT supported by the RAN SubNetwork that the intent expectation

 is applied.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - RAT

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 type: string

 enum:

 - UTRAN

 - EUTRAN

 - NR

 UEGroupContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for UEGroup([5QI, SNSSAI])

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - UEGroup

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28312\_IntentNrm.yaml#/components/schemas/UEGroup"

 EdgeIdentificationIdContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for EdgeIdentificationIdContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - edgeIdentificationId

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 type: string

 EdgeIdentificationLocContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for EdgeIdentificationLocContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - edgeIdentificationTarget

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/GeoCoordinate'

 CoverageAreaTAContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for CoverageAreaTAContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - coverageAreaTA

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28623\_ComDefs.yaml#/components/schemas/Tac"

 NfTypeContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for NfTypeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - NfType

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28541\_5GcNrm.yaml#/components/schemas/NFType"

 NfInstanceLocationContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for NfInstanceLocationContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - NfInstanceLocation

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 type: string

 TaiContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for TaiContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - Tai

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 $ref: "TS28623\_GenericNrm.yaml#/components/schemas/Tai"

 ServingScopeContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for ServingScopeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ServingScope

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 type: string

 DnnContext:

 description: >-

 This data type is the "ObjectContext" data type with specialisations for DnnContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - Dnn

 contextCondition:

 type: string

 enum:

 - IS\_ALL\_OF

 contextValueRange:

 type: array

 uniqueItems: true

 items:

 type: string

 #-------Definition of the scenario specific ObjectTarget dataType----------------#

 #-------Definition of the concrete ExpectationContext dataType----------------#

 TargetAssuranceTimeContext:

 description: >-

 This data type is the "Expectation Context" data type with specialisations for TargetAssuranceTimeContext.It describes the timeWindows

 (including startTime, endTime) when the targets in the Intent Expectation need to be assured.

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - TargetAssuranceTime

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/TimeWindow'

 ServiceStartTimeContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for ServiceStartTimeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ServiceStartTime

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTime'

 ServiceEndTimeContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for ServiceEndTimeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ServiceEndTime

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTime'

 UEMobilityLevelContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for UEMobilityLevelContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - UEMobilityLevel

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: "TS28541\_SliceNrm.yaml#/components/schemas/MobilityLevel"

 ResourceSharingLevelContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for ResourceSharingLevelContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ResourceSharingLevel

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: "TS28541\_SliceNrm.yaml#/components/schemas/SharingLevel"

 ServiceTypeContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for ServiceTypeContext.It describes

 the service type for the Radio Service that the intent expectation is applied. For details see sST in clause 6.4.1 in TS 28.541 [5]

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - ServiceType

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: "TS28541\_NrNrm.yaml#/components/schemas/Sst"

 StartTimeContext:

 description: >-

 This data type is the "ExpectationContext" data type with specialisations for StartTimeContext

 type: object

 properties:

 contextAttribute:

 type: string

 enum:

 - StartTime

 contextCondition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 contextValueRange:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTime'

 #-------Definition of the concrete ExpectionContext dataType----------------#

<CODE ENDS>

\*\*\* END OF CHANGE 1 \*\*\*

\*\*\* START OF CHANGE 2 \*\*\*

\*\*\* OpenAPI/TS28312\_IntentNrm.yaml \*\*\*

<CODE BEGINS>

openapi: 3.0.1

info:

 title: Intent NRM

 version: 18.5.0

 description: >-

 OAS 3.0.1 definition of the Intent NRM

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externalDocs:

 description: 3GPP TS 28.312; Intent driven management services for mobile networks

 url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.312/

paths: {}

components:

 schemas:

 #-------- Definition of types for name-containments ------

 SubNetwork-ncO-IntentNrm:

 type: object

 properties:

 IntentHandlingFunction:

 $ref: '#/components/schemas/IntentHandlingFunction-Multiple'

 #-------Definition of generic IOCs ----------#

 Intent-Single:

 description: >-

 This IOC represents the properties of an Intent driven management information between MnS consumer and MnS producer.

 allOf:

 - $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

 - type: object

 properties:

 userLabel:

 type: string

 intentExpectations:

 type: array

 uniqueItems: true

 items:

 type: object

 oneOf:

 - $ref: "#/components/schemas/IntentExpectation"

 - $ref: "TS28312\_IntentExpectations.yaml#/components/schemas/RadioNetworkExpectation"

 - $ref: "TS28312\_IntentExpectations.yaml#/components/schemas/EdgeServiceSupportExpectation"

 - $ref: "TS28312\_IntentExpectations.yaml#/components/schemas/5GCNetworkExpectation"

 - $ref: "TS28312\_IntentExpectations.yaml#/components/schemas/RadioServiceExpectation"

 contextSelectivity:

 $ref: "#/components/schemas/Selectivity"

 intentContexts:

 type: array

 uniqueItems: true

 items:

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

 description: >-

 It describes the list of Context(s) which represents the constraints and conditions that should apply

 for the entire intent even if there may be specific contexts defined for specific parts of the intent

 intentAdminState:

 type: string

 enum:

 - ACTIVATED

 - DEACTIVATED

 description: >-

 It describes the intent administrative state.

 This attribute is used when MnS consumer-suspension mechanism is supported

 intentPriority:

 type: integer

 minimum: 1

 maximum: 100

 description: It expresses the priority of the stated intent within a MnS consumer.

 intentPreemptionCapability:

 type: boolean

 observationPeriod:

 type: integer

 description: >-

 It represents the observation period of the fulfilmentInfo for corresponding

 ExpectationTargets, IntentExpectations and Intent.

 intentReportReference:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 IntentReport-Single:

 description: It represents intent report information from MnS producer to MnS consumer.

 allOf:

 - $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

 - type: object

 properties:

 intentFulfilmentReport:

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

 intentConflictReports:

 type: array

 uniqueItems: true

 items:

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

 intentFeasibilityCheckReport:

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

 lastUpdatedTime:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTimeRo'

 intentReference:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 IntentHandlingFunction-Single:

 description: >-

 It represents the intent handling capabilities can be supported by a specific intent

 handling function of MnS producer.

 allOf:

 - $ref: 'TS28623\_GenericNrm.yaml#/components/schemas/Top'

 - type: object

 properties:

 intentHandlingCapabilityList:

 type: array

 uniqueItems: true

 items:

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

 Intent:

 $ref: '#/components/schemas/Intent-Multiple'

 IntentReport:

 $ref: '#/components/schemas/IntentReport-Multiple'

 #-------Definition of generic IOCs ----------#

 #-------Definition of the generic IntentExpectation dataType ----------#

 IntentExpectation:

 description: >-

 This data type is the "IntentExpectation" data type without specialisations

 It represents MnS consumer's requirements, goals and contexts given to a 3GPP system

 type: object

 properties:

 expectationId:

 type: string

 description: A unique identifier of the intentExpectation within the intent.

 expectationVerb:

 $ref: "#/components/schemas/ExpectationVerb"

 expectationObject:

 $ref: "#/components/schemas/ExpectationObject"

 expectationTargets:

 type: array

 uniqueItems: true

 items:

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

 contextSelectivity:

 $ref: "#/components/schemas/Selectivity"

 expectationContexts:

 type: array

 uniqueItems: true

 items:

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

 required:

 - expectationId

 #-------Definition of the generic IntentExpectation dataType ----------#

 #-------Definition of the generic ExpectationObject dataType ----------#

 ExpectationObject:

 description: >-

 It represents the Object to which the IntentExpectation should apply.

 This data type is the "ExpectationObject" data type without specialisations

 type: object

 properties:

 objectType:

 type: string

 enum:

 - RAN\_SUBNETWORK #value for Radio Network Expectation--#

 - EDGE\_SERVICE\_SUPPORT #value for Edge Service Support Expectation--#

 - 5GC\_SUBNETWORK #value for 5GC Network Expectation--#

 - Radio\_Service #value for Radio Service Expectation--#

 objectInstance:

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/Dn'

 objectContexts:

 type: array

 uniqueItems: true

 items:

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

 description: >-

 It describes the list of Context(s) which represents the constraints and conditions to be

 used as filter information to identify the object(s) to which a given intentExpectation should apply.

 #-------Definition of the generic ExpectationObject dataType ----------#

 #-------Definition of the generic dataType --------------#

 Condition:

 type: string

 enum:

 - IS\_EQUAL\_TO

 - IS\_LESS\_THAN

 - IS\_GREATER\_THAN

 - IS\_WITHIN\_RANGE

 - IS\_OUTSIDE\_RANGE

 - IS\_ONE\_OF

 - IS\_NOT\_ONE\_OF

 - IS\_EQUAL\_TO\_OR\_LESS\_THAN

 - IS\_EQUAL\_TO\_OR\_GREATER\_THAN

 - IS\_ALL\_OF

 Selectivity:

 type: string

 enum:

 - ALL\_OF

 - ONE\_OF

 - ANY\_OF

 FulfilmentStatus:

 type: string

 readOnly: true

 enum:

 - FULFILLED

 - NOT\_FULFILLED

 default: NOT\_FULFILLED

 description: It describes the current status of the intent fulfilment result.

 NotFulfilledState:

 type: string

 readOnly: true

 enum:

 - ACKNOWLEDGED

 - COMPLIANT

 - DEGRADED

 - SUSPENDED

 - TERMINATED

 - FULFILMENTFAILED

 default: ACKNOWLEDGED

 description: It describes the current progress of or the reason for not achieving fulfilment

 for the intent, intentExpectation or expectationTarget.

 An attribute which is used when FulfilmentInfo is implemented for IntentFulfilmentInfo

 FulfilmentInfo:

 description: >-

 This dataType represents the properties of a specific fulfilment information for an aspect of

 the intent (i.e. either an expectation, a target or the whole intent).

 type: object

 properties:

 fulfilmentStatus:

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

 notFullfilledState:

 $ref: "#/components/schemas/NotFulfilledState"

 notFulfilledReasons:

 type: array

 uniqueItems: true

 items:

 type: string

 readOnly: true

 description: An attribute which is used when FulfilmentInfo is implemented for IntentFulfilmentInfo

 ExpectationVerb:

 type: string

 enum:

 - DELIVER

 - ENSURE

 description: It describes the characteristic of the intentExpectation and is the property that describes the types of intentExpectations. Vendor extensions are allowed

 Frequency:

 description: >-

 It desribes the RF reference frequency (i.e. Absolute Radio Frequency Channel Number)

 and/or the frequency operating band used for a given direction (UL or DL) in FDD or

 for both UL and DL directions in TDD.

 type: object

 properties:

 arfcn:

 type: integer

 description: >-

 This attribute shall be supported, when the frequency information represent RF reference frequency.

 The allowed values for NR see TS 38.104 subclause 5.4.2.1; The allowed values for EUTRAN see TS 36.104 [X] subclause 5.7.3;

 freqband:

 type: string

 description: >-

 This attribute shall be supported, when the frequency information represent frequency operating band.

 The allowed values for NR see TS 38.104 subclause 5.4.2.3; The allowed value for EUTRAN see TS 36.104 subclause 5.7.3

 ValueRangeType:

 oneOf:

 - type: number

 - type: string

 - type: boolean

 - type: integer

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/TimeWindow'

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DateTime'

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/GeoArea'

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/PlmnId'

 - $ref: 'TS28623\_ComDefs.yaml#/components/schemas/GeoCoordinate'

 - $ref: '#/components/schemas/UEGroup'

 - $ref: '#/components/schemas/Frequency'

 UEGroup:

 description: >-

 It describes the UE Group, which is

 represented by specific 5QI, specific S-NSSAI, or a specific combination

 of S-NSSAI and 5QI

 type: object

 properties:

 fiveQI:

 type: integer

 minimum: 0

 maximum: 255

 sNssai:

 $ref: 'TS28541\_NrNrm.yaml#/components/schemas/Snssai'

 #-------Definition of the generic dataType --------------#

 #-------Definition of the generic ExpectationTarget dataType----------#

 ExpectationTarget:

 description: >-

 This data type represents the target of the IntentExpectation that are required to be achieved.

 This data type is the "ExpectationTarget" data type without specialisations

 type: object

 properties:

 targetName:

 type: string

 targetCondition:

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

 targetValueRange:

 oneOf:

 - type: array

 uniqueItems: true

 items:

 $ref: "#/components/schemas/ValueRangeType"

 - $ref: "#/components/schemas/ValueRangeType"

 contextSelectivity:

 $ref: "#/components/schemas/Selectivity"

 targetContexts:

 type: array

 uniqueItems: true

 items:

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

 description: It describes the list of constraints and conditions that should apply for a specific expectationTarget.

 #-------Definition of the generic ExpectationTarget dataType----------#

 #-------Definition of the generic Context dataType----------------#

 Context:

 description: >-

 This data type is the "Context" data type without specialisations

 type: object

 properties:

 contextAttribute:

 type: string

 contextCondition:

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

 contextValueRange:

 oneOf:

 - type: array

 uniqueItems: true

 items:

 $ref: "#/components/schemas/ValueRangeType"

 - $ref: "#/components/schemas/ValueRangeType"

 #-------Definition of the generic Context dataType----------------#

 #-------Definition of the generic IntentFulfilmentReport dataType----------------#

 IntentFulfilmentReport:

 description: >-

 It includes the intentFulfilmentInfo and expectationFulfilmetResult.

 This attribute shall be supported when intent fulfilment information is supported by IntentReport

 type: object

 properties:

 intentFulfilmentInfo:

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

 expectationFulfilmentResult:

 type: array

 uniqueItems: true

 items:

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

 #-------Definition of the concrete IntentFulfilmentReport dataType----------------#

 #-------Definition of the generic ExpectationFulfilmentResult dataType----------------#

 ExpectationFulfilmentResult:

 description: >-

 It includes the expectationFulfilmentInfo and targetFulfilmentResults for each IntentExpectation.

 type: object

 properties:

 expectaitonId:

 type: string

 readOnly: true

 expectationFulfilmentInfo:

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

 targetFulfilmentResult:

 type: array

 uniqueItems: true

 items:

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

 #-------Definition of the concrete ExpectationFulfilmentResult dataType----------------#

 #-------Definition of the generic TargetFulfilmentResult dataType----------------#

 TargetFulfilmentResult:

 description: >-

 This data type includes targetFulfilmentInfo and targetAchievedValue for each ExpectationTarget.

 type: object

 properties:

 targetName:

 type: string

 readOnly: true

 targetFulfilmentInfo:

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

 targetAchievedValue:

 type: number

 description: >-

 It describes the value that has been achieved for the expectation target at the time at which

 the report is generated.

 readOnly: true

 targetContexts:

 type: array

 uniqueItems: true

 items:

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

 #-------Definition of the concrete TargetFulfilmentResult dataType----------------#

 #-------Definition of the generic IntentConflictReport dataType----------------#

 IntentConflictReport:

 description: >-

 It represents the conflict information for the detected conflict

 This attribute shall be supported when intent conflict information is supported by IntentReport

 type: object

 properties:

 conflictId:

 type: string

 readOnly: true

 conflictType:

 type: string

 readOnly: true

 enum:

 - INTENT\_CONFLICT

 - EXPECTATION\_CONFLICT

 - TARGET\_CONFLICT

 conflictingIntent:

 description: >-

 This will be present if the value of conflictType is INTENT\_CONFLICT. It describes the DN of the conflicting intent

 $ref: 'TS28623\_ComDefs.yaml#/components/schemas/DnRo'

 conflictingExpectation:

 description: >-

 This will be present if the value of conflictType is EXPECTATION\_CONFLICT. It describes the expectationId of the conflicting IntentExpectation with an Intent

 type: string

 readOnly: true

 conflictingTarget:

 description: >-

 This will be present if the value of conflictType is TARGET\_CONFLICT. It describes the targetName of the conflicting ExpectationTarget with an IntentExpectation

 type: string

 readOnly: true

 recommendedSolutions:

 type: string

 readOnly: true

 enum:

 - MODIFY

 - DELETE

 #-------Definition of the concrete IntentConflictReport dataType----------------#

 #-------Definition of the generic IntentFeasibilityCheckReport dataType----------------#

 IntentFeasibilityCheckReport:

 description: >-

 It represents the intent feasibility check information

 This attribute shall be supported when intent feasibility check information information is supported by IntentReport

 type: object

 properties:

 feasibilityCheckResult:

 type: string

 readOnly: true

 enum:

 - FEASIBLE

 - INFEASIBLE

 infeasibilityReason:

 type: string

 readOnly: true

 description: An attribute which is used when feasibilityCheckResult is INFEASIBLE

 #-------Definition of the concrete IntentFeasibilityCheckReport dataType----------------#

 #-------Definition of the generic IntentHandlingCapability dataType----------------#

 IntentHandlingCapability:

 description: >-

 It represents expectation object information and expectation target information

 which can be supported by a specific intent handling function of MnS producer.

 type: object

 properties:

 intentHandlingCapabilityId:

 type: string

 readOnly: true

 supportedExpectationObjectType:

 type: string

 enum:

 - RAN\_SUBNETWORK

 - EDGE\_SERVICE\_SUPPORT

 - 5GC\_SUBNETWORK

 - Radio\_Service

 readOnly: true

 description: It describes the expectation object type which can be supported by a specific intent handling function of MnS producer.

 supportedExpectationTargetNames:

 type: array

 uniqueItems: true

 items:

 type: string

 readOnly: true

 description: It describes the supported expectation targets for the supported expectation object type.

 #-------Definition of the concrete IntentHandlingCapability dataType----------------#

 #------Definition of JSON arrays for name-contained IOCs ---------------#

 Intent-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/Intent-Single'

 IntentReport-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/IntentReport-Single'

 IntentHandlingFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/IntentHandlingFunction-Single'

 #------Definition of JSON arrays for name-contained IOCs ---------------#

 #----- Definitions in TS 28.312 for TS 28.532 --------------------------#

 resources-intentNrm:

 oneOf:

 - $ref: '#/components/schemas/IntentHandlingFunction-Single'

 - $ref: '#/components/schemas/Intent-Single'

 - $ref: '#/components/schemas/IntentReport-Single'

 #----- Definitions in TS 28.312 for TS 28.532 --------------------------#

<CODE ENDS>

\*\*\* END OF CHANGE 2 \*\*\*

|  |
| --- |
| **End of Changes** |