3GPP TSG RAN3 Meeting #123 R3-240907

Athens, Greece, 26 February - 1 March, 2024

Agenda Item: 23.2

Source: ZTE, CATT, Huawei, Nokia, Nokia Shanghai Bell, Ericsson, Samsung, Xiaomi

Title: (TP to BL CR for TS 38.473) Support of BW Aggregation

Document for: other

# Introduction.

1. **Introduce k = {-3, -4, -5, -6} in *UL ROTA Measurement* IE, *gNB Rx-Tx Time Difference* IE and *Additional Path List* IE over F1AP.**
2. **Rename PRS Bandwidth Aggregation Request Information IE to PRS Bandwidth Aggregation Request Indication IE.**
3. **Add ASN.1 of PRS Bandwidth Aggregation Request Information IE in the Requested DL PRS Transmission Characteristics IE.**

# TP to F1AP BLCR

<<<<<<<<<<<<<<<<<<<< Start of changes >>>>>>>>>>>>>>>>>>>>

#### 9.2.12.10 TRP INFORMATION REQUEST

This message is sent by a gNB-CU to request information for TRPs hosted by a gNB-DU.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **TRP list** |  | *0..1* |  |  | YES | ignore |
| **>TRP list Item** |  | *1..<maxnoofTRPs>* |  |  | EACH | ignore |
| >>TRP ID | M |  | 9.3.1.197 |  | - |  |
| >>PRS Bandwidth Aggregation Request Indication | O | ENUMERATED(true, ...) |  |  | YES | ignore |
| **TRP Information Type List** |  | *1* |  |  | YES | reject |
| **>TRP Information Type Item** |  | *1 .. <maxnoofTRPInfoTypes>* |  |  | EACH | reject |
| >>TRP Information Type Item | M |  | ENUMERATED (nr pci, ng-ran cgi, nr arfcn, prs config, ssb config, sfn init time, spatial direction info, geo-coordinates, …, trp type, on-demand prs, trp Tx teg, beam antenna info, mobile TRP location info) |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofTRPInfoTypes | Maximum no of TRP information types that can be requested and reported with one message. Value is 64. |
| maxnoofTRPs | Maximum no. of TRPs in a gNB. Value is 65535. |

#### 9.3.1.168 UL RTOA Measurement

This information element contains the uplink RTOA measurement.

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| CHOICE *UL RTOA Measurement* | M |  |  |  | - |  |
| *>k0* |  |  |  |  |  |  |
| >>k0 | M |  | INTEGER (0.. 1970049) | TS 38.133 [38] | - |  |
| *>k1* |  |  |  |  |  |  |
| >>k1 | M |  | INTEGER (0.. 985025) | TS 38.133 [38] | - |  |
| *>k2* |  |  |  |  |  |  |
| >>k2 | M |  | INTEGER (0.. 492513) | TS 38.133 [38] | - |  |
| *>k3* |  |  |  |  |  |  |
| >>k3 | M |  | INTEGER (0.. 246257) | TS 38.133 [38] | - |  |
| *>k4* |  |  |  |  |  |  |
| >>k4 | M |  | INTEGER (0.. 123129) | TS 38.133 [38] | - |  |
| *>k5* |  |  |  |  |  |  |
| >>k5 | M |  | INTEGER (0.. 61565) | TS 38.133 [38] | - |  |
| *>kminus1* |  |  |  |  |  |  |
| >>kminus1 | M |  | INTEGER (0.. 3940097) | TS 38.133 [38] | YES | ignore |
| *>kminus2* |  |  |  |  |  |  |
| >>kminus2 | M |  | INTEGER (0.. 7880193) | TS 38.133 [38] | YES | ignore |
| *>kminus3* |  |  |  |  |  |  |
| *>>kminus3* | M |  | INTEGER (0..15760385) | TS 38.133 [38] | YES | ignore |
| *>kminus4* |  |  |  |  |  |  |
| *>>kminus4* | M |  | INTEGER (0..31520769) | TS 38.133 [38] | YES | ignore |
| *>kminus5* |  |  |  |  |  |  |
| *>>kminus5* | M |  | INTEGER (0..63041537) | TS 38.133 [38] | YES | ignore |
| *>kminus6* |  |  |  |  |  |  |
| *>>kminus6* | M |  | INTEGER (0..126083073) | TS 38.133 [38] | YES | ignore |
| Additional Path List | O |  | 9.3.1.169 | This IE is ignored if the *Extended Additional Path List* IE is included | - |  |
| Extended Additional Path List | O |  | 9.3.1.248 |  | YES | ignore |
| TRP Rx TEG Information | O |  | 9.3.1.280 |  | YES | ignore |

#### 9.3.1.169 Additional Path List

This information element contains the additional path results of time measurement.

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| **Additional Path Item** |  | *1..<maxnoofPath>* |  |  | - |  |
| >CHOICE *Relative* *Path Delay* | M |  |  |  | - |  |
| *>>k0* |  |  |  |  |  |  |
| >>>k0 | M |  | INTEGER(0..16351) |  | - |  |
| *>>k1* |  |  |  |  |  |  |
| >>>k1 | M |  | INTEGER(0..8176) |  | - |  |
| *>>k2* |  |  |  |  |  |  |
| >>>k2 | M |  | INTEGER(0..4088) |  | - |  |
| *>>k3* |  |  |  |  |  |  |
| >>>k3 | M |  | INTEGER(0..2044) |  | - |  |
| *>>k4* |  |  |  |  |  |  |
| >>>k4 | M |  | INTEGER(0..1022) |  | - |  |
| *>>k5* |  |  |  |  |  |  |
| >>>k5 | M |  | INTEGER(0..511) |  | - |  |
| *>kminus1* |  |  |  |  |  |  |
| >>kminus1 | M |  | INTEGER (0.. 32701) | TS 38.133 [38] | YES | ignore |
| *>kminus2* |  |  |  |  |  |  |
| >>kminus2 | M |  | INTEGER (0.. 65401) | TS 38.133 [38] | YES | ignore |
| *>kminus3* |  |  |  |  |  |  |
| *>>kminus3* | M |  | INTEGER (0..130801) | TS 38.133 [38] | YES | ignore |
| *>kminus4* |  |  |  |  |  |  |
| *>>kminus4* | M |  | INTEGER (0..261601) | TS 38.133 [38] | YES | ignore |
| *>kminus5* |  |  |  |  |  |  |
| *>>kminus5* | M |  | INTEGER (0..523201) | TS 38.133 [38] | YES | ignore |
| *>kminus6* |  |  |  |  |  |  |
| *>>kminus6* | M |  | INTEGER (0..1046401) | TS 38.133 [38] | YES | ignore |
| >Path Quality | O |  | TRP Measurement Quality  9.3.1.172 |  | - |  |
| >Multiple UL AoA | O |  | 9.3.1.245 |  | YES | ignore |
| >Path Power | O |  | UL SRS-RSRPP  9.3.1.246 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPath | Maximum no. of additional path measurements. Value is 2. |

#### 9.3.1.170 gNB Rx-Tx Time Difference

This information element contains the gNB Rx-Tx Time Difference measurement.

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| CHOICE *gNB Rx-Tx Time Difference Measurement* | M |  |  |  | - |  |
| *>k0* |  |  |  |  |  |  |
| >>k0 | M |  | INTEGER (0.. 1970049) | TS 38.133 [38] | - |  |
| *>k1* |  |  |  |  |  |  |
| >>k1 | M |  | INTEGER (0.. 985025) | TS 38.133 [38] | - |  |
| *>k2* |  |  |  |  |  |  |
| >>k2 | M |  | INTEGER (0.. 492513) | TS 38.133 [38] | - |  |
| *>k3* |  |  |  |  |  |  |
| >>k3 | M |  | INTEGER (0.. 246257) | TS 38.133 [38] | - |  |
| *>k4* |  |  |  |  |  |  |
| >>k4 | M |  | INTEGER (0.. 123129) | TS 38.133 [38] | - |  |
| *>k5* |  |  |  |  |  |  |
| >>k5 | M |  | INTEGER (0.. 61565) | TS 38.133 [38] | - |  |
| *>kminus1* |  |  |  |  |  |  |
| >>kminus1 | M |  | INTEGER (0.. 3940097) | TS 38.133 [38] | YES | ignore |
| *>kminus2* |  |  |  |  |  |  |
| >>kminus2 | M |  | INTEGER (0.. 7880193) | TS 38.133 [38] | YES | ignore |
| *>kminus3* |  |  |  |  |  |  |
| *>>kminus3* | M |  | INTEGER (0..15760385) | TS 38.133 [38] | YES | ignore |
| *>kminus4* |  |  |  |  |  |  |
| *>>kminus4* | M |  | INTEGER (0..31520769) | TS 38.133 [38] | YES | ignore |
| *>kminus5* |  |  |  |  |  |  |
| *>>kminus5* | M |  | INTEGER (0..63041537) | TS 38.133 [38] | YES | ignore |
| *>kminus6* |  |  |  |  |  |  |
| *>>kminus6* | M |  | INTEGER (0..126083073) | TS 38.133 [38] | YES | ignore |
| Additional Path List | O |  | 9.3.1.169 |  | - |  |
| Extended Additional Path List | O |  | 9.3.1.248 |  | YES | ignore |
| TRP TEG Information | O |  | 9.3.1.253 |  | YES | ignore |

#### 9.3.1.235 Requested DL PRS Transmission Characteristics

This IE contains the requested PRS configuration for transmission by the gNB-CU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| **Requested DL-PRS Resource Set List** |  | *1* |  |  | - |  |
| **>Requested DL-PRS Resource Set Item** |  | *1*..<*maxnoofPRSresourceSets*> |  |  | - |  |
| >>PRS bandwidth | O |  | INTEGER(1..63) | 24,28,…,272 PRBs | - |  |
| >>Comb Size | O |  | ENUMERATED(2, 4, 6, 12, …) |  | - |  |
| >>Resource Set Periodicity | O |  | ENUMERATED(4,5,8,10,16,20,32,40,64,80,160,320,640,1280,2560,5120,10240,20480,40960,81920,…, 128, 256, 512) | Slots | - |  |
| >>Resource Repetition Factor | O |  | ENUMERATED(rf1,rf2,rf4,rf6,rf8,rf16,rf32,…) |  | - |  |
| >>Resource Number of Symbols | O |  | ENUMERATED(n2,n4,n6,n12,…,n1) |  | - |  |
| >>Requested DL-PRS Resource List | O |  | 9.3.1.250 |  | - |  |
| >>Resource Set Start Time and Duration | O |  | Start Time and Duration  9.3.1.236 | This IE is ignored if the *Start Time and Duration* IE is present | - |  |
| Number of Frequency Layers | O |  | INTEGER(1..4) |  | - |  |
| Start Time and Duration | O |  | 9.3.1.236 |  | - |  |
| PRS Bandwidth Aggregation Request Indication | O |  | ENUMERATED(true, …) |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPRSresourceSets | Maximum no of PRS resources set. Value is 8. |

### 9.4.5 Information Element Definitions

-- ASN1START

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-- Information Element Definitions

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

<<<<<<<<<<<<<<<<<<< Omitted text unchanged >>>>>>>>>>>>>>>>>>>>

id-RadioResourceStatusNR-U,

id-FiveG-ProSeLayer2Multipath,

id-FiveG-ProSeLayer2UEtoUERelay,

id-FiveG-ProSeLayer2UEtoUERemote,

id-TSCTrafficCharacteristicsFeedback,

id-RANfeedbacktype,

id-Mobile-TRP-LocationInformation,

id-Mobile-IAB-MT-UE-ID,

id-MobileAccessPointLocation,

id-SIBX-message,

id-PDUSetQoSParameters,

id-N6JitterInformation,

id-ECNMarkingorCongestionInformationReportingRequest,

id-ECNMarkingorCongestionInformationReportingStatus,

id-ERedcap-Bcast-Information,

id-NeedForInterruptionInfoNR,

id-LTMCells-ToBeReleased-Item,

id-UL-RSCP,

id-BW-Aggregation-Request-Indication,

id-ReportingGranularitykminus1,

id-ReportingGranularitykminus1additionalpath,

id-ReportingGranularitykminus2,

id-ReportingGranularitykminus2additionalpath,

id-ReportingGranularitykminus3,

id-ReportingGranularitykminus3additionalpath,

id-ReportingGranularitykminus4,

id-ReportingGranularitykminus4additionalpath,

id-ReportingGranularitykminus5,

id-ReportingGranularitykminus5additionalpath,

id-ReportingGranularitykminus6,

id-ReportingGranularitykminus6additionalpath, id-TimingReportingGranularityFactorExtended,

id-PosValidityAreaCellList,

id-SymbolIndex,

id-AggregatedPosSRSResourceIDList,

id-PhaseQuality,

id-PRSBandwidthAggregationRequestIndication,

id-AggregatedPRSResourceSetList,

maxNRARFCN,

maxnoofErrors,

maxnoofBPLMNs,

maxnoofBPLMNsNR,

maxnoofDLUPTNLInformation,

maxnoofNrCellBands,

maxnoofULUPTNLInformation,

maxnoofQoSFlows,

maxnoofSliceItems,

maxnoofSIBTypes,

maxnoofSITypes,

maxCellineNB,

maxnoofExtendedBPLMNs,

maxnoofAdditionalSIBs,

maxnoofUACPLMNs,

maxnoofUACperPLMN,

maxCellingNBDU,

maxnoofTLAs,

maxnoofGTPTLAs,

maxnoofslots,

maxnoofNonUPTrafficMappings,

maxnoofServingCells,

maxnoofServedCellsIAB,

maxnoofChildIABNodes,

maxnoofIABSTCInfo,

maxnoofSymbols,

maxnoofDUFSlots,

maxnoofHSNASlots,

maxnoofEgressLinks,

maxnoofMappingEntries,

maxnoofDSInfo,

maxnoofQoSParaSets,

maxnoofPC5QoSFlows,

maxnoofSSBAreas,

maxnoofNRSCSs,

maxnoofPhysicalResourceBlocks,

maxnoofPhysicalResourceBlocks-1,

maxnoofPRACHconfigs,

maxnoofRAReports,

maxnoofRLFReports,

maxnoofAdditionalPDCPDuplicationTNL,

maxnoofRLCDuplicationState,

maxnoofCHOcells,

maxnoofMDTPLMNs,

maxnoofCAGsupported,

maxnoofNIDsupported,

maxnoofExtSliceItems,

maxnoofPosMeas,

maxnoofTRPInfoTypes,

maxnoofSRSTriggerStates,

maxnoofSpatialRelations,

maxnoBcastCell,

maxnoofTRPs,

maxnoofAngleInfo,

maxnooflcs-gcs-translation,

maxnoofPath,

maxnoofMeasE-CID,

maxnoofSSBs,

maxnoSRS-ResourceSets,

maxnoSRS-ResourcePerSet,

maxnoSRS-Carriers,

maxnoSCSs,

maxnoSRS-Resources,

maxnoSRS-PosResources,

maxnoSRS-PosResourceSets,

maxnoSRS-PosResourcePerSet,

maxnoofPRS-ResourceSets,

maxnoofPRS-ResourcesPerSet,

maxNoOfMeasTRPs,

maxnoofPRSresourceSets,

maxnoofPRSresources,

maxnoofSuccessfulHOReports,

maxnoofNR-UChannelIDs,

maxServedCellforSON,

maxNeighbourCellforSON,

maxAffectedCells,

maxnoofMBSQoSFlows,

maxnoofMBSFSAs,

maxnoofMBSAreaSessionIDs,

maxnoofMBSServiceAreaInformation,

maxnoofTAIforMBS,

maxnoofCellsforMBS,

maxnoofIABCongInd,

maxnoofBHRLCChannels,

maxnoofTLAsIAB,

maxnoofRBsetsPerCell,

maxnoofRBsetsPerCell-1,

maxnoofNeighbourNodeCellsIAB,

maxnoofMeasPDC,

maxnoARPs,

maxnoofULAoAs,

maxNoPathExtended,

maxnoTRPTEGs,

maxFreqLayers,

maxNumResourcesPerAngle,

maxnoAzimuthAngles,

maxnoElevationAngles,

maxnoofPRSTRPs,

maxnoofQoEInformation,

maxnoofUuRLCChannels,

maxnoofPC5RLCChannels,

maxnoofSMBRValues,

maxnoofMBSSessionsofUE,

maxnoofSLdestinations,

maxnoofNSAGs,

maxnoofSDTBearers,

maxnoofPosSITypes,

maxnoofMRBs,

maxNrofBWPs,

maxnoofUETypes,

maxnoofLTMCells,

maxnoofJointorDLTCIStates,

maxnoofULTCIStates,

maxnoofTAList,

maxnoofDRBs,

maxnoofUEsInQMCTransferControlMessage,

maxnoofUEsforRAReportIndications,

maxnoofSuccessfulPSCellChangeReports,

maxnoofPeriodicities,

maxnoofThresholdMBS,

maxMBSSessionsinSessionInfoList,

maxnoofRSPPQoSFlows,

maxnoVACell,

maxnoAggregatedSRS-Resources,

maxnoAggregatedPosSRSResourceSets,

maxnoAggregatedPosPRSResourceSets,

maxnoofTimeWindowSRS,

maxnoofTimeWindowMea

<<<<<<<<<<<<<<<<<<< Omitted text unchanged >>>>>>>>>>>>>>>>>>>>

GNBRxTxTimeDiffMeas ::= CHOICE {

k0 INTEGER (0.. 1970049),

k1 INTEGER (0.. 985025),

k2 INTEGER (0.. 492513),

k3 INTEGER (0.. 246257),

k4 INTEGER (0.. 123129),

k5 INTEGER (0.. 61565),

choice-extension ProtocolIE-SingleContainer { { GNBRxTxTimeDiffMeas-ExtIEs } }

}

GNBRxTxTimeDiffMeas-ExtIEs F1AP-PROTOCOL-IES ::= {

{ID id-ReportingGranularitykminus1 CRITICALITY ignore TYPE ReportingGranularitykminus1 PRESENCE mandatory}|

{ID id-ReportingGranularitykminus2 CRITICALITY ignore TYPE ReportingGranularitykminus2 PRESENCE mandatory }|

{ID id-ReportingGranularitykminus3 CRITICALITY ignore TYPE ReportingGranularitykminus3 PRESENCE mandatory}|

{ID id-ReportingGranularitykminus4 CRITICALITY ignore TYPE ReportingGranularitykminus4 PRESENCE mandatory }|

{ID id-ReportingGranularitykminus5 CRITICALITY ignore TYPE ReportingGranularitykminus5 PRESENCE mandatory}|

{ID id-ReportingGranularitykminus6 CRITICALITY ignore TYPE ReportingGranularitykminus6 PRESENCE mandatory },

...

}

<<<<<<<<<<<<<<<<<<< Omitted text unchanged >>>>>>>>>>>>>>>>>>>>

RelativePathDelay ::= CHOICE {

k0 INTEGER (0..16351),

k1 INTEGER (0..8176),

k2 INTEGER (0..4088),

k3 INTEGER (0..2044),

k4 INTEGER (0..1022),

k5 INTEGER (0..511),

choice-extension ProtocolIE-SingleContainer { { RelativePathDelay-ExtIEs } }

}

RelativePathDelay-ExtIEs F1AP-PROTOCOL-IES ::= {

{ID id-ReportingGranularitykminus1additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus1AdditionalPath PRESENCE mandatory}|

{ID id-ReportingGranularitykminus2additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus2AdditionalPath PRESENCE mandatory }|

{ID id-ReportingGranularitykminus3additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus3AdditionalPath PRESENCE mandatory}|

{ID id-ReportingGranularitykminus4additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus4AdditionalPath PRESENCE mandatory }|

{ID id-ReportingGranularitykminus5additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus5AdditionalPath PRESENCE mandatory}|

{ID id-ReportingGranularitykminus6additionalpath CRITICALITY ignore TYPE ReportingGranularitykminus6AdditionalPath PRESENCE mandatory },

...

}

<<<<<<<<<<<<<<<<<<< Omitted text unchanged >>>>>>>>>>>>>>>>>>>>

RelativeGeodeticLocation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RemoteUELocalID ::= INTEGER (0..255, ...)

ReferenceTime ::= OCTET STRING

RegistrationRequest ::= ENUMERATED{start, stop, add, ...}

ReportCharacteristics ::= BIT STRING (SIZE(32))

ReportingPeriodicity ::= ENUMERATED{ms500, ms1000, ms2000, ms5000, ms10000, ...}

ReportingGranularitykminus1 ::= INTEGER(0..3940097)

ReportingGranularitykminus2 ::= INTEGER(0..7880193)

ReportingGranularitykminus3 ::= INTEGER(0..15760385)

ReportingGranularitykminus4 ::= INTEGER(0..31520769)

ReportingGranularitykminus5 ::= INTEGER(0..63041537)

ReportingGranularitykminus6 ::= INTEGER(0..126083073)

ReportingGranularitykminus1AdditionalPath ::= INTEGER(0..32701)

ReportingGranularitykminus2AdditionalPath ::= INTEGER(0..65401)

ReportingGranularitykminus3AdditionalPath ::= INTEGER(0..130801)

ReportingGranularitykminus4AdditionalPath ::= INTEGER(0..261601)

ReportingGranularitykminus5AdditionalPath ::= INTEGER(0..523201)

ReportingGranularitykminus6AdditionalPath ::= INTEGER(0..1046401)

<<<<<<<<<<<<<<<<<<< Omitted text unchanged >>>>>>>>>>>>>>>>>>>>

RequestedDLPRSTransmissionCharacteristics ::= SEQUENCE {

requestedDLPRSResourceSet-List RequestedDLPRSResourceSet-List,

numberofFrequencyLayers INTEGER(1..4) OPTIONAL,

startTimeAndDuration StartTimeAndDuration OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { RequestedDLPRSTransmissionCharacteristics-ExtIEs} } OPTIONAL,

...

}

RequestedDLPRSTransmissionCharacteristics-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-PRSBandwidthAggregationRequestIndication CRITICALITY ignore EXTENSION PRSBandwidthAggregationRequestIndication PRESENCE optional},

...

}

<<<<<<<<<<<<<<<<<<< Omitted text unchanged >>>>>>>>>>>>>>>>>>>>

PRSBandwidthAggregationRequestIndication ::= ENUMERATED(true, ...)

<<<<<<<<<<<<<<<<<<< Omitted text unchanged >>>>>>>>>>>>>>>>>>>>

TRPList ::= SEQUENCE (SIZE(1.. maxnoofTRPs)) OF TRPListItem

TRPListItem ::= SEQUENCE {

tRPID TRPID,

iE-Extensions ProtocolExtensionContainer { { TRPListItem-ExtIEs } } OPTIONAL

}

TRPListItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-PRSBandwidthAggregationRequestIndication CRITICALITY ignore EXTENSION PRSBandwidthAggregationRequestIndication PRESENCE optional},

...

}

TRPMeasurementQuality ::= SEQUENCE {

tRPmeasurementQuality-Item TRPMeasurementQuality-Item,

iE-Extensions ProtocolExtensionContainer { {TRPMeasurementQuality-ExtIEs} } OPTIONAL

}

<<<<<<<<<<<<<<<<<<<< next change >>>>>>>>>>>>>>>>>>>>

### 9.4.7 Constant Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

ProcedureCode,

ProtocolIE-ID

FROM F1AP-CommonDataTypes;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Elementary Procedures

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

id-Reset ProcedureCode ::= 0

id-F1Setup ProcedureCode ::= 1

id-ErrorIndication ProcedureCode ::= 2

id-gNBDUConfigurationUpdate ProcedureCode ::= 3

id-gNBCUConfigurationUpdate ProcedureCode ::= 4

id-UEContextSetup ProcedureCode ::= 5

id-UEContextRelease ProcedureCode ::= 6

id-UEContextModification ProcedureCode ::= 7

id-UEContextModificationRequired ProcedureCode ::= 8

id-UEMobilityCommand ProcedureCode ::= 9

id-UEContextReleaseRequest ProcedureCode ::= 10

id-InitialULRRCMessageTransfer ProcedureCode ::= 11

id-DLRRCMessageTransfer ProcedureCode ::= 12

id-ULRRCMessageTransfer ProcedureCode ::= 13

id-privateMessage ProcedureCode ::= 14

id-UEInactivityNotification ProcedureCode ::= 15

id-GNBDUResourceCoordination ProcedureCode ::= 16

id-SystemInformationDeliveryCommand ProcedureCode ::= 17

id-Paging ProcedureCode ::= 18

id-Notify ProcedureCode ::= 19

id-WriteReplaceWarning ProcedureCode ::= 20

id-PWSCancel ProcedureCode ::= 21

id-PWSRestartIndication ProcedureCode ::= 22

id-PWSFailureIndication ProcedureCode ::= 23

id-GNBDUStatusIndication ProcedureCode ::= 24

id-RRCDeliveryReport ProcedureCode ::= 25

id-F1Removal ProcedureCode ::= 26

id-NetworkAccessRateReduction ProcedureCode ::= 27

id-TraceStart ProcedureCode ::= 28

id-DeactivateTrace ProcedureCode ::= 29

id-DUCURadioInformationTransfer ProcedureCode ::= 30

id-CUDURadioInformationTransfer ProcedureCode ::= 31

id-BAPMappingConfiguration ProcedureCode ::= 32

id-GNBDUResourceConfiguration ProcedureCode ::= 33

id-IABTNLAddressAllocation ProcedureCode ::= 34

id-IABUPConfigurationUpdate ProcedureCode ::= 35

id-resourceStatusReportingInitiation ProcedureCode ::= 36

id-resourceStatusReporting ProcedureCode ::= 37

id-accessAndMobilityIndication ProcedureCode ::= 38

id-accessSuccess ProcedureCode ::= 39

id-cellTrafficTrace ProcedureCode ::= 40

id-PositioningMeasurementExchange ProcedureCode ::= 41

id-PositioningAssistanceInformationControl ProcedureCode ::= 42

id-PositioningAssistanceInformationFeedback ProcedureCode ::= 43

id-PositioningMeasurementReport ProcedureCode ::= 44

id-PositioningMeasurementAbort ProcedureCode ::= 45

id-PositioningMeasurementFailureIndication ProcedureCode ::= 46

id-PositioningMeasurementUpdate ProcedureCode ::= 47

id-TRPInformationExchange ProcedureCode ::= 48

id-PositioningInformationExchange ProcedureCode ::= 49

id-PositioningActivation ProcedureCode ::= 50

id-PositioningDeactivation ProcedureCode ::= 51

id-E-CIDMeasurementInitiation ProcedureCode ::= 52

id-E-CIDMeasurementFailureIndication ProcedureCode ::= 53

id-E-CIDMeasurementReport ProcedureCode ::= 54

id-E-CIDMeasurementTermination ProcedureCode ::= 55

id-PositioningInformationUpdate ProcedureCode ::= 56

id-ReferenceTimeInformationReport ProcedureCode ::= 57

id-ReferenceTimeInformationReportingControl ProcedureCode ::= 58

id-BroadcastContextSetup ProcedureCode ::= 59

id-BroadcastContextRelease ProcedureCode ::= 60

id-BroadcastContextReleaseRequest ProcedureCode ::= 61

id-BroadcastContextModification ProcedureCode ::= 62

id-MulticastGroupPaging ProcedureCode ::= 63

id-MulticastContextSetup ProcedureCode ::= 64

id-MulticastContextRelease ProcedureCode ::= 65

id-MulticastContextReleaseRequest ProcedureCode ::= 66

id-MulticastContextModification ProcedureCode ::= 67

id-MulticastDistributionSetup ProcedureCode ::= 68

id-MulticastDistributionRelease ProcedureCode ::= 69

id-PDCMeasurementInitiation ProcedureCode ::= 70

id-PDCMeasurementReport ProcedureCode ::= 71

id-PDCMeasurementInitiationRequest ProcedureCode ::= 72

id-PDCMeasurementInitiationResponse ProcedureCode ::= 73

id-PDCMeasurementInitiationFailure ProcedureCode ::= 74

id-pRSConfigurationExchange ProcedureCode ::= 75

id-measurementPreconfiguration ProcedureCode ::= 76

id-measurementActivation ProcedureCode ::= 77

id-QoEInformationTransfer ProcedureCode ::= 78

id-PDCMeasurementTerminationCommand ProcedureCode ::= 79

id-PDCMeasurementFailureIndication ProcedureCode ::= 80

id-PosSystemInformationDeliveryCommand ProcedureCode ::= 81

id-DUCUCellSwitchNotification ProcedureCode ::= 82

id-CUDUCellSwitchNotification ProcedureCode ::= 83

id-DUCUTAInformationTransfer ProcedureCode ::= 84

id-CUDUTAInformationTransfer ProcedureCode ::= 85

id-QoEInformationTransferControl ProcedureCode ::= 86

id-RachIndication ProcedureCode ::= 87

id-TimingSynchronisationStatus ProcedureCode ::= 88

id-TimingSynchronisationStatusReport ProcedureCode ::= 89

id-MIABF1SetupTriggering ProcedureCode ::= 90

id-MIABF1SetupOutcomeNotification ProcedureCode ::= 91

id-MulticastContextNotification ProcedureCode ::= 92

id-MulticastCommonConfiguration ProcedureCode ::= 93

id-BroadcastTransportResourceRequest ProcedureCode ::= 94

id-sRSInformationReservationNotification ProcedureCode ::= x0

<<<<<<<<<<<<<<<<<<< Omitted text unchanged >>>>>>>>>>>>>>>>>>>>

maxnoofUETypes INTEGER ::= 8

maxnoofLTMCells INTEGER ::= 8

maxnoofJointorDLTCIStates INTEGER ::= 128

maxnoofULTCIStates INTEGER ::= 64

maxnoofTAList INTEGER ::= 8

maxnoofUEsInQMCTransferControlMessage INTEGER ::= 512

maxnoofUEsforRAReportIndications INTEGER ::= 64

maxnoofSuccessfulPSCellChangeReports INTEGER ::= 64

maxnoofPeriodicities INTEGER ::= 8

maxnoofThresholdMBS INTEGER ::= 64

maxMBSSessionsinSessionInfoList INTEGER ::= 1024

maxnoofRSPPQoSFlows INTEGER ::= 2048

maxnoVACell INTEGER ::= 32

maxnoAggregatedSRS-Resources INTEGER ::= 3

maxnoAggregatedPosSRSResourceSets INTEGER ::= 48

maxnoAggregatedPosPRSResourceSets INTEGER ::= 3

maxnoofTimeWindowSRS INTEGER ::= 16

maxnoofTimeWindowMea INTEGER ::= 16

<<<<<<<<<<<<<<<<<<< Omitted text unchanged >>>>>>>>>>>>>>>>>>>>

id-MulticastCU2DUCommonRRCInfo ProtocolIE-ID ::= 774

id-PDUSetQoSParameters ProtocolIE-ID ::= 775

id-N6JitterInformation ProtocolIE-ID ::= 776

id-ECNMarkingorCongestionInformationReportingRequest ProtocolIE-ID ::= 777

id-ECNMarkingorCongestionInformationReportingStatus ProtocolIE-ID ::= 778

id-NRA2XServicesAuthorized ProtocolIE-ID ::= 779

id-LTEA2XServicesAuthorized ProtocolIE-ID ::= 780

id-NRUESidelinkAggregateMaximumBitrateForA2X ProtocolIE-ID ::= 781

id-LTEUESidelinkAggregateMaximumBitrateForA2X ProtocolIE-ID ::= 782id-NReRedCapUEIndication ProtocolIE-ID ::= 783

id-ERedcap-Bcast-Information ProtocolIE-ID ::= 784

id-NRPaginglongeDRXInformationforRRCINACTIVE ProtocolIE-ID ::= 785

id-SLPositioning-Ranging-Service-Info ProtocolIE-ID ::= xx0

id-TimeWindowInformation-SRS-List ProtocolIE-ID ::= xx1

id-TimeWindowInformation-Measurement-List ProtocolIE-ID ::= xx2

id-UL-RSCP ProtocolIE-ID ::= xx3

id-BW-Aggregation-Request-Information ProtocolIE-ID ::= xx4

id-ReportingGranularitykminus1 ProtocolIE-ID ::= xx5

id-ReportingGranularitykminus2 ProtocolIE-ID ::= xx6

id-ReportingGranularitykminus1additionalpath ProtocolIE-ID ::= xx7

id-ReportingGranularitykminus2additionalpath ProtocolIE-ID ::= xx8

id-TimingReportingGranularityFactorExtended ProtocolIE-ID ::= xx9

id-SRSPosRRCInactiveValidityAreaConfig ProtocolIE-ID ::= x10

id-PosValidityAreaCellList ProtocolIE-ID ::= x11

id-SRSReservationRequest ProtocolIE-ID ::= x12

id-SymbolIndex ProtocolIE-ID ::= x13

id-PRSBandwidthAggregationRequestIndication ProtocolIE-ID ::= x14

id-AggregatedPosSRSResourceIDList ProtocolIE-ID ::= x15

id-AggregatedPRSResourceSetList ProtocolIE-ID ::= x16

id-PhaseQuality ProtocolIE-ID ::= x17

id-ReportingGranularitykminus3 ProtocolIE-ID ::= x18

id-ReportingGranularitykminus4 ProtocolIE-ID ::= x19

id-ReportingGranularitykminus5 ProtocolIE-ID ::= x18

id-ReportingGranularitykminus6 ProtocolIE-ID ::= x19

id-ReportingGranularitykminus3additionalpath ProtocolIE-ID ::= x20

id-ReportingGranularitykminus4additionalpath ProtocolIE-ID ::= x21

id-ReportingGranularitykminus5additionalpath ProtocolIE-ID ::= x22

id-ReportingGranularitykminus6additionalpath ProtocolIE-ID ::= x23

<<<<<<<<<<<<<<<<<<<< End of changes >>>>>>>>>>>>>>>>>>>>