3GPP TSG-RAN WG3 Meeting #123 R3-240906

Athens, Greece, 26 February - 01 March 2024

**Agenda item: 23.3**

**Source: Ericsson, Nokia, Nokia Shanghai Bell, Huawei, ZTE, CATT, Qualcomm Inc., Xiaomi, Samsung**

**Title: (TP for TS 38.473 BL CR) Resolution of open issues for RedCap UEs**

**Document for: Other**

# 1 Introduction

This TP introduces F1AP changes to support RedCap positioning and CPP.

# Annex A: Text Proposal for TS 38.473

*Start of modifications*

8.13.3 Positioning Measurement

8.13.3.1 General

The purpose of the Positioning Measurement procedure is to allow the gNB-CU to request one or more TRPs in the gNB-DU to perform and report positioning measurements. The procedure uses non-UE-associated signalling.

8.13.3.2 Successful Operation

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**Figure 8.13.3.2-1: Positioning Measurement procedure: successful operation**

The gNB-CU initiates the procedure by sending a POSITIONING MEASUREMENT REQUEST message to the gNB-DU, indicating in the *TRP Measurement Request List* IE the TRP(s) from which measurements are requested. The gNB-DU node shall use the included information to configure positioning measurements by the indicated TRP(s). If at least one of the requested measurements has been successful for at least one of the TRPs, the gNB-DU shall reply with the POSITIONING MEASUREMENT RESPONSE message including the *Positioning Measurement Response List* IE.

If the *Positioning Report Characteristics* IE is set to "OnDemand", the gNB-DU shall return the corresponding measurement results in the *Positioning Measurement Result List* IE in the POSITIONING MEASUREMENT RESPONSE message, and the gNB-CU shall consider that this reporting has been terminated by the gNB-DU.

If the *Measurement Beam Information Request* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU node shall include the *Measurement Beam Information* IE in the *Positioning Measurement Result* IE of the POSITIONING MEASUREMENT RESPONSE message.

If the *Measurement Quality* IE is included in the *Measurement Result* IE in the POSITIONING MEASUREMENT RESPONSE message, the gNB-CU may use it for further signalling. If the *Measurement Quality* IE includes the *Zenith Quality* IE, the gNB-CU may use it for further signalling.

If the *System Frame Number* IE and/or the *Slot Number* IE are included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU node shall, if supported, consider that the respective information indicates the activation time of SRS transmission.

If the *Measurement Characteristics Request Indicator* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU shall, if supported, take the requested measurement characteristics into account when configuring measurements, and include the requested information, if available, in the POSITIONING MEASUREMENT RESPONSE message.

If the *Number of TRP Rx TEGs* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU shall, if supported, use it to measure the same SRS resource with different TRP Rx TEGs for the indicated TRP, and report the corresponding UL-RTOA and/or gNB Rx-Tx time difference measurements.

If the *Number of TRP RxTx TEGs* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU shall, if supported, use it to measure the same SRS resource with different TRP RxTx TEGs with the same TRP Tx TEG for the indicated TRP, and report the corresponding gNB Rx-Tx time difference measurements.

If the *Measurement Time Occasion* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU may take it into account as the number of SRS measurement time occasions for a measurement instance.

If the *Time Window Information Measurement List* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU shall, if supported, measure the UL SRS resources within the indicated time window(s)

**Interaction with the Positioning Measurement Report procedure:**

If the *Positioning Report Characteristics* IE is set to "Periodic", the gNB-DU shall initiate the corresponding measurements, and it shall reply with the POSITIONING MEASUREMENT RESPONSE message without including any measurement results in the message. The gNB-DU shall then periodically initiate the Positioning Measurement Report procedure for the corresponding measurements, with the requested reporting periodicity.

If the *Report Characteristics* IE is set to "OnDemand" and the *Response Time* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU shall, if supported, return the corresponding measurement results in the POSITIONING MEASUREMENT RESPONSE message within the indicated time.

If the *Positioning* *Report Characteristics* IE is set to "Periodic" and the *Positioning Measurement Amount* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU shall, if supported, take it into account for sending the POSITIONING MEASUREMENT REPORT message.

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.3.1.166 Positioning Measurement Result

The purpose of this information element is to provide the measurement result(s).

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Positioning Measured Result Item |  | *1 .. <maxnoofPosMeas>* |  |  | - |  |
| >CHOICE *Measured Results Value* | M |  |  |  | - |  |
| *>>UL Angle of Arrival* |  |  |  |  |  |  |
| >>>UL Angle of Arrival | M |  | 9.3.1.167 |  | - |  |
| *>>UL SRS-RSRP* |  |  |  |  |  |  |
| >>>UL SRS-RSRP | M |  | INTEGER (0..126) |  | - |  |
| *>>UL RTOA* |  |  |  |  |  |  |
| >>>UL RTOA | M |  | UL RTOA Measurement9.3.1.168 |  | - |  |
| *>>gNB Rx-Tx Time Difference* |  |  |  |  |  |  |
| >>>gNB Rx-Tx Time Difference | M |  | 9.3.1.170 |  | - |  |
| *>>Zenith Angle of Arrival Information* |  |  |  |  | YES | reject |
| >>>Zenith Angle of Arrival Information | M |  | 9.3.1.239 |  | - |  |
| *>>Multiple UL AoA* |  |  |  |  | YES | reject |
| >>>Multiple UL AoA | M |  | 9.3.1.245 |  | - |  |
| *>>UL SRS-RSRPP* |  |  |  |  | YES | reject |
| >>>UL SRS-RSRPP | M |  | 9.3.1.246 |  | - |  |
| *>>UL RSCP*  |  |  |  |  | YES | reject |
| >>>UL RSCP | M |  | 9.3.1.x5 |  | - |  |
| >Time Stamp | M |  | 9.3.1.171 |  | - |  |
| >Measurement Quality | O |  | TRP Measurement Quality9.3.1.172 |  | - |  |
| >Measurement Beam Information | O |  | 9.3.1.173 |  | - |  |
| >ARP ID | O |  | 9.3.1.244 |  | YES | ignore |
| >SRS Resource type | O |  | 9.3.1.247 |  | YES | ignore |
| >LoS/NLoS Information | O |  | 9.3.1.249 |  | YES | ignore |
| >Mobile TRP Location Information | O |  | 9.3.1.304 |  | YES | ignore |
| >Measured Frequency Hops | O |  | ENUMERATED (singleHop, multiHop, …) |  | YES | ignore |
| **>Aggregated Positioning SRS Resource ID List** |  | *0..1* |  | Indicates the used SRS for positioning resources across aggregated carriers. | YES | ignore |
| **>>Aggregated Positioning SRS Resource ID Item** |  | *0..<maxnoaggregatedSRS-Resources>* |  |  |  |  |
| >>>Positioning SRS Resource ID | M |  | INTEGER (0..63) |  |  |  |

| Range bound | Explanation |
| --- | --- |
| maxnoofPosMeas | Maximum no. of measured quantities that can be configured and reported with one message. Value is 16384. |
| maxnoaggregatedSRS-Resources | Maximum no of aggregated SRS resources per UL BWP. Value is 3. |

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.3.1.175 Requested SRS Transmission Characteristics

This IE contains the requested SRS configuration for the UE for positioning purposes.

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Number Of Periodic Transmissions | C-ifResourceTypePeriodic |  | INTEGER (0..500,…) | The number of periodic SRS transmissions requested. The value of ‘0’ represents an infinite number of SRS transmissions. | - |  |
| Resource Type | M |  | ENUMERATED (periodic, semi-persistent, aperiodic, …) |  | - |  |
| CHOICE *Bandwidth SRS* | M |  |  |  | - |  |
| *>FR1* |  |  |  |  |  |  |
| >>FR1 Bandwidth | M |  | ENUMERATED (5, 10, 20, 40, 50, 80, 100, ..., 160, 200) |  | - |  |
| >*FR2* |  |  |  |  |  |  |
| >>FR2 Bandwidth | M |  | ENUMERATED (50, 100, 200, 400,…,800,1600, 2000, 600) |  | - |  |
| **SRS Resource Set List** |  | *0.. 1* |  |  | - |  |
| **>SRS Resource Set Item** |  | *1..<* *maxnoSRS-ResourceSets>* |  |  | - |  |
| >>Number of SRS Resources Per Set | O |  | INTEGER (1..16,...) | The number of SRS Resources per resource set for SRS transmission.  | - |  |
| **>>Periodicity List** |  | *0.. 1* |  |  | - |  |
| **>>>Periodicity List Item** |  | 1..<*maxnoSRS-ResourcePerSet*> |  |  | - |  |
| >>>>PeriodicitySRS | M |  | ENUMERATED (0.125, 0.25, 0.5, 0.625, 1, 1.25, 2, 2.5, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 160, 320, 640, 1280, 2560, 5120, 10240, …) | Milli-seconds | - |  |
| >>Spatial Relation Information | O |  | 9.3.1.181 | This IE is ignored if the *Spatial Relation Information per SRS Resource* IE is present. | - |  |
| >>Pathloss Reference Information | O |  | 9.3.1.201 |  | - |  |
| >>Spatial Relation Information per SRS Resource | O |  | 9.3.1.210 |  | YES | ignore |
| SSB Information | O |  | 9.3.1.202 |  | - |  |
| SRS Frequency | O |  | INTEGER(0..3279165) | NR ARFCN The carrier frequency of SRS transmission bandwidth. | YES | ignore |
| Bandwidth Aggregation Request Information | O |  | ENUMERATED(true, …)  |  | YES | ignore |
| Positioning Validity Area Cell List | O |  | 9.3.1.x6 |  | YES | ignore |
| CHOICE *Transmission Comb* | O |  |  |  | YES | ignore |
| *>Comb Two* |  |  |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..1) |  |  |  |
| >>Cyclic Shift | M |  | INTEGER(0..7) |  |  |  |
| *>Comb Four* |  |  |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..3) |  |  |  |
| >>Cyclic Shift | M |  | INTEGER(0..11) |  |  |  |
| *>Comb Eight* |  |  |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..7) |  |  |  |
| >>Cyclic Shift | M |  | INTEGER(0..5) |  |  |  |
| **Resource Mapping** |  | *0..1* |  |  | YES | Ignore |
| >Start Position | M |  | INTEGER(0..13) |  | - |  |
| >Number of Symbols | M |  | ENUMERATED(n1,n2,n4, n8, n12} |  | - |  |
| Frequency Domain Shift | O |  | INTEGER(0..268) |  | YES | Ignore |
| C-SRS | O |  | INTEGER(0..63) |  | YES | Ignore |
| CHOICE *Resource Type Positioning* | O |  |  |  | YES | Ignore |
| *>periodic* |  |  |  |  |  |  |
| >>Periodicity | M |  | 9.3.1.y1 |  | - |  |
| >>Offset | M |  | INTEGER(0..81919,…) |  | - |  |
| *>semi-persistent* |  |  |  |  |  |  |
| >>Periodicity | M |  | 9.3.1.y1 |  | - |  |
| >>Offset | M |  | INTEGER(0..81919,…) |  | - |  |
| *>aperiodic* |  |  |  | Not applicable if the *Positioning Validity Area Cell List* IE is included |  |  |
| >>slot offset | M |  | INTEGER(0..32) |  | - |  |
| Sequence ID | O |  | INTEGER(0..65535) |  | YES | ignore |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifResourceTypePeriodic | This IE shall be present if the *Resource Type* IE is set to the value "Periodic". |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoSRS-ResourceSets | Maximum no of requested SRS Resource Sets for SRS transmission. Value is 16. |
| *maxnoSRS-ResourcePerSet* | Maximum no of SRS Resources per set. Value is 16. |

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

9.3.1.194 Positioning SRS Resource

This information element contains the SRS resource for positioning.

| **IE/Group Name** | **Presence** | **Range** | **IE Type and Reference** | **Semantics Description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Positioning SRS Resource ID | M |  | INTEGER (0..63) |  | - |  |
| CHOICE *Transmission Comb Positioning* | M |  |  |  | - |  |
| >*Comb Two* |  |  |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..1) |  | - |  |
| >>Cyclic Shift | M |  | INTEGER(0..7) |  | - |  |
| >*Comb Four* |  |  |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..3) |  | - |  |
| >>Cyclic Shift | M |  | INTEGER(0..11) |  | - |  |
| >*Comb Eight* |  |  |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..7) |  | - |  |
| >>Cyclic Shift | M |  | INTEGER(0..5) |  | - |  |
| Start Position | M |  | INTEGER(0..13) |  | - |  |
| Number of Symbols | M |  | ENUMERATED(1,2,4,8,12) |  | - |  |
| Frequency Domain Shift | M |  | INTEGER(0..268) |  | - |  |
| C-SRS | M |  | INTEGER(0..63) |  | - |  |
| Group or Sequence Hopping | M |  | ENUMERATED(Neither, groupHopping, sequenceHopping) |  | - |  |
| CHOICE *Resource Type Positioning* | M |  |  |  | - |  |
| *>Periodic* |  |  |  |  |  |  |
| >>SRS Periodicity | M |  | 9.3.1.y1 |  | - |  |
| >>Offset | M |  | INTEGER(0..81919,…) |  | - |  |
| *>Semi-persistent* |  |  |  |  |  |  |
| >>SRS Periodicity | M |  | 9.3.1.y1 |  | - |  |
| >>Offset | M |  | INTEGER(0..81919,…) |  | - |  |
| *>Aperiodic* |  |  |  |  |  |  |
| >>Slot offset | M |  | INTEGER(0..32) |  | - |  |
| Sequence ID | M |  | INTEGER(0..65535) |  | - |  |
| CHOICE *Spatial Relation Positioning* | O |  |  |  | - |  |
| *>SSB* |  |  |  |  |  |  |
| >>PCI | M |  | INTEGER (0..1007) |  | - |  |
| >>SSB index | O |  | INTEGER(0..63) |  | - |  |
| *>PRS* |  |  |  |  |  |  |
| >>PRS ID | M |  | INTEGER(0..255) |  | - |  |
| >>PRS Resource Set ID | M |  | INTEGER(0..7) |  | - |  |
| >>PRS Resource ID | O |  | INTEGER(0..63) |  | - |  |
| Tx Hopping Configuration | O |  | 9.3.1.y2 |  | YES | ignore |

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

9.3.1.y1 SRS Periodicity

This information element indicates the SRS periodicity.

| **IE/Group Name** | **Presence** | **Range** | **IE Type and Reference** | **Semantics Description** |
| --- | --- | --- | --- | --- |
| SRS Periodicity | M |  | ENUMERATED(slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, slot5120, slot10240, slot40960, slot81920,…, slot128, slot256, slot512, slot20480) |  |

9.3.1.y2 Tx Hopping Configuration

This information element indicates the Tx hopping configuration.

| **IE/Group Name** | **Presence** | **Range** | **IE Type and Reference** | **Semantics Description** |
| --- | --- | --- | --- | --- |
| Overlap Value | M |  | ENUMERATED(rb0, rb1, rb2, rb4) |  |
| Number of Hops | M |  | INTEGER(1..6) |  |
| **Slot Offset for Remaining Hops List** |  | *1* |  |  |
| **>Slot Offset for Remaining Hops Item** |  | *1..<maxnoofHopsMinusOne>* |  |  |
| >>CHOICE *slot offset remaining hops* | M |  |  |  |
| >>>*aperiodic* |  |  |  |  |
| >>>>Slot Offset | O |  | INTEGER(1..32) |  |
| >>>>Start Position | O |  | INTEGER(0..13) |  |
| *>>>semi-persistent* |  |  |  |  |
| >>>>SRS Periodicity | M |  | 9.3.1.y1 |  |
| >>>>Offset | M |  | INTEGER(0..81919, …) |  |
| *>>>periodic* |  |  |  |  |
| >>>>SRS Periodicity | M |  | 9.3.1.y1 |  |
| >>>>Offset | M |  | INTEGER(0..81919, …) |  |

| **Range bound** | **Explanation** |
| --- | --- |
| maxnoofHopsMinusOne | Maximum no of hops that can be configured for positioning SRS transmission minus one. Value is 5. |

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 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-Information,

 id-ReportingGranularitykminus1,

 id-ReportingGranularitykminus1additionalpath,

 id-ReportingGranularitykminus2,

 id-ReportingGranularitykminus2additionalpath,

 id-TimingReportingGranularityFactorExtended,

 id-PosValidityAreaCellList,

 id-SymbolIndex,

 id-AggregatedPosSRSResourceIDList,

 id-PhaseQuality,

 id-PRSBandwidthAggregationRequestInfo,

 id-AggregatedPRSResourceSetList,

 id-MeasuredFrequencyHops,

 id-TxHoppingConfiguration,

 maxNRARFCN,

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

PosMeasurementResultItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

 { ID id-ARP-ID CRITICALITY ignore EXTENSION ARP-ID PRESENCE optional}|

 { ID id-SRSResourcetype CRITICALITY ignore EXTENSION SRSResourcetype PRESENCE optional}|

 { ID id-LoS-NLoSInformation CRITICALITY ignore EXTENSION LoS-NLoSInformation PRESENCE optional }|

 { ID id-Mobile-TRP-LocationInformation CRITICALITY ignore EXTENSION Mobile-TRP-LocationInformation PRESENCE optional }|

 { ID id-AggregatedPosSRSResourceIDList CRITICALITY ignore EXTENSION AggregatedPosSRSResourceIDList PRESENCE optional }|

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

 ...

}

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

MeasuredFrequencyHops ::= ENUMERATED {singleHop, multiHop, ...}

MeasuredResultsValue ::= CHOICE {

 uL-AngleOfArrival UL-AoA,

 uL-SRS-RSRP UL-SRS-RSRP,

 uL-RTOA UL-RTOA-Measurement,

 gNB-RxTxTimeDiff GNB-RxTxTimeDiff,

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

}

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

 { ID id-ZoAInformation CRITICALITY reject TYPE ZoAInformation PRESENCE mandatory}|

 { ID id-MultipleULAoA CRITICALITY reject TYPE MultipleULAoA PRESENCE mandatory}|

 { ID id-UL-SRS-RSRPP CRITICALITY reject TYPE UL-SRS-RSRPP PRESENCE mandatory}|

 { ID id-UL-RSCP CRITICALITY reject TYPE UL-RSCP PRESENCE mandatory},

 ...

}

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

PosSRSResource-Item ::= SEQUENCE {

 srs-PosResourceId SRSPosResourceID,

 transmissionCombPos TransmissionCombPos,

 startPosition INTEGER (0..13),

 nrofSymbols ENUMERATED {n1, n2, n4, n8, n12},

 freqDomainShift INTEGER (0..268),

 c-SRS INTEGER (0..63),

 groupOrSequenceHopping ENUMERATED { neither, groupHopping, sequenceHopping },

 resourceTypePos ResourceTypePos,

 sequenceId INTEGER (0.. 65535),

 spatialRelationPos SpatialRelationPos OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { PosSRSResource-Item-ExtIEs} } OPTIONAL

}

PosSRSResource-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

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

 ...

}

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

ResourceTypePeriodicPos ::= SEQUENCE {

 periodicity SRS-Periodicity,

 offset INTEGER(0..81919, ...),

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

}

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

 ...

}

ResourceTypeSemi-persistentPos ::= SEQUENCE {

 periodicity SRS-Periodicity,

 offset INTEGER(0..81919, ...),

 iE-Extensions ProtocolExtensionContainer { { ResourceTypeSemi-persistentPos-ExtIEs} } OPTIONAL

}

ResourceTypeSemi-persistentPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

 ...

}

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

Slot-Configuration-List ::= SEQUENCE (SIZE(1.. maxnoofslots)) OF Slot-Configuration-Item

Slot-Configuration-Item ::= SEQUENCE {

 slotIndex INTEGER (0..5119, ...),

 symbolAllocInSlot SymbolAllocInSlot,

 iE-Extensions ProtocolExtensionContainer { { Slot-Configuration-ItemExtIEs } } OPTIONAL

}

Slot-Configuration-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

 ...

}

SlotOffsetForRemainingHopsList ::= SEQUENCE (SIZE (1..maxnoHopsMinusOne)) OF SlotOffsetForRemainingHopsItem

SlotOffsetForRemainingHopsItem ::= SEQUENCE {

 slotOffsetRemainingHops SlotOffsetRemainingHops,

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

 ...

}

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

 ...

}

SlotOffsetRemainingHops ::= CHOICE {

 aperiodic SlotOffsetRemainingHopsAperiodic,

 semi-persistent SlotOffsetRemainingHopsSemiPersistent,

 periodic SlotOffsetRemainingHopsPeriodic,

 choice-extension ProtocolIE-Single-Container {{ SlotOffsetRemainingHops-ExtIEs }}

}

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

 ...

}

SlotOffsetRemainingHopsAperiodic ::= SEQUENCE {

 slotOffset INTEGER (1..32) OPTIONAL,

 startPosition INTEGER (0..13) OPTIONAL,

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

 ...

}

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

 ...

}

SlotOffsetRemainingHopsSemiPersistent ::= SEQUENCE {

 sRSperiodicity SRSPeriodicity,

 offset INTEGER(0..81919, ...),

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

 ...

}

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

 ...

}

SlotOffsetRemainingHopsPeriodic ::= SEQUENCE {

 sRSperiodicity SRSPeriodicity,

 offset INTEGER(0..81919, ...),

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

 ...

}

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

 ...

}

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

SRSCarrier-List ::= SEQUENCE (SIZE(1.. maxnoSRS-Carriers)) OF SRSCarrier-List-Item

SRS-Periodicity ::= ENUMERATED{slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, slot5120, slot10240, slot40960, slot81920, ..., slot128, slot256, slot512, slot20480}

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

TimeWindowPeriodicityMeasurement ::= ENUMERATED {ms160, ms320, ms640, ms1280, ms2560, ms5120, ms10240, ms20480, ms40960, ms61440, ms81920, ms368640, ms737280, ms1843200, ...}

<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

TwoPHRModeMCG ::= ENUMERATED {enabled, ...}

TwoPHRModeSCG ::= ENUMERATED {enabled, ...}

TxHoppingConfiguration ::= SEQUENCE {

 overlapValue ENUMERATED {rb0, rb1, rb2, rb4},

 numberOfHops INTEGER (1..6),

 slotOffsetForRemainingHopsList SlotOffsetForRemainingHopsList,

 iE-extensions ProtocolExtensionContainer { { TxHoppingConfiguration-ExtIEs } } OPTIONAL,

 ...

}

TxHoppingConfiguration-ExtIEs NRPPA-PROTOCOL-EXTENSION ::= {

 ...

}

<<<<<<<<<<<<<<<<<<< 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-PRSBandwidthAggregationRequestInfo ProtocolIE-ID ::= x14

id-AggregatedPosSRSResourceIDList ProtocolIE-ID ::= x15

id-AggregatedPRSResourceSetList ProtocolIE-ID ::= x16

id-PhaseQuality ProtocolIE-ID ::= x17

id-MeasuredFrequencyHops ProtocolIE-ID ::= x18

id-TxHoppingConfiguration ProtocolIE-ID ::= x19