**3GPP TSG-RAN WG3 Meeting #114-e R3-221252**

**E-meeting, XX-XX XXX 2021**

**Title:** (TP for SON BL CR for TS 36.423): Left overs on RACH Optimization Enhancements

**Source:** Huawei

**Agenda item:** 10.2.1.7

**Document Type:** Other

# 1. Introduction

This document contains a TP as proposed in Summary of offline disc R3-221020.

# Annex – TP for SON BLCR for TS 36.423

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

### 9.2.98 NR Neighbour Information

This IE contains cell configuration information of NR cells that a neighbour node may need for the X2 AP interface.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| **NR** **Neighbour Information** |  | *1 .. <maxnoofNRNeighbours>* |  |  | – |  |
| >**NR Neighbour Information Item** |  |  |  |  | – |  |
|  >>NRPCI | M |  | INTEGER (0..1007) | NR Physical Cell ID | – |  |
| >>NR CGI | M |  | 9.2.111 |  | – |  |
| >>5GS-TAC | O |  | OCTET STRING (3) | Broadcast 5GS Tracking Area Code | – |  |
| >>Configured TAC | O |  | OCTET STRING (2) | This is the TAC configured in the en-gNB, different from the 5GS TAC broadcast in the NR cell and enables application of Roaming and Access Restrictions for EN-DC as specified in TS 37.340 [32]. | – |  |
| >>Measurement Timing Configuration | M |  | OCTET STRING | Contains the MeasurementTimingConfiguration inter-node message for the neighbour cell, as defined in TS 38.331 [31]. | – |  |
| >>CHOICE *NR-Neighbour-Mode-Info* | M |  |  |  | – |  |
| >>>*FDD* |  |  |  |  |  |  |
| >>>>**FDD Info** |  | *1* |  |  | – |  |
| >>>>>UL ARFCNFreqInfo | M |  | NR ARFCN Frequency Info9.2.106 |  | – |  |
| >>>>>DL ARFCNFreqInfo | M |  | NR ARFCN Frequency Info9.2.106 |  | – |  |
| >>>>>UL Carrier List | O |  | NR Carrier List9.2.168 |  | YES | ignore |
| >>>*TDD* |  |  |  |  |  |  |
| >>>>**TDD Info** |  | *1* |  |  | – |  |
| >>>>>ARFCNNRFreqInfo | M |  | NR ARFCN Frequency Info9.2.106 |  | – |  |
| >>>>>Intended TDD DL-UL Configuration NR | O |  | OCTET STRING | Contains the *Intended TDD DL-UL Configuration NR* IE as defined in TS 38.423 [49]. | YES | ignore |
| >>>>>TDD UL-DL Configuration Common NR | O |  | OCTET STRING | The *tdd-UL-DL-ConfigurationCommon* IE in TS 38.331 [31] | YES | ignore |
| >>>>>Carrier List | O |  | NR Carrier List9.2.168 |  | YES | ignore |
| >>CSI-RS Transmission Indication | O |  | ENUMERATED {activated, deactivated, ...} | This IE indicates the CSI-RS transmission status of the given cell. | YES | ignore |
| >>SSB Positions In Burst | O |  | 9.2.169 |  | YES | ignore |
| >>NR Cell PRACH Configuration | O |  | OCTET STRING | Contains the NR Cell PRACH Configuration IE as defined in TS 38.473 [44]. | YES | ignore |

<<<<<<<<<<<<<<<<<<<< Next change >>>>>>>>>>>>>>>>>>>>

9.3.5 Information Element definitions

-- ASN1START

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-- Information Element Definitions

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

X2AP-IEs {

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

eps-Access (21) modules (3) x2ap (2) version1 (1) x2ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 id-E-RAB-Item,

 id-Number-of-Antennaports,

 id-MBSFN-Subframe-Info,

 id-PRACH-Configuration,

 id-CSG-Id,

 id-MDTConfiguration,

 id-SignallingBasedMDTPLMNList,

 id-MultibandInfoList,

 id-FreqBandIndicatorPriority,

 id-NeighbourTAC,

 id-Time-UE-StayedInCell-EnhancedGranularity,

 id-MBMS-Service-Area-List,

 id-HO-cause,

 id-eARFCNExtension,

 id-DL-EARFCNExtension,

 id-UL-EARFCNExtension,

 id-M3Configuration,

 id-M4Configuration,

 id-M5Configuration,

 id-MDT-Location-Info,

 id-NRrestrictioninEPSasSecondaryRAT,

 id-NRrestrictionin5GS,

 id-AdditionalSpecialSubframe-Info,

 id-UEID,

 id-enhancedRNTP,

 id-ProSeUEtoNetworkRelaying,

 id-M6Configuration,

 id-M7Configuration,

 id-OffsetOfNbiotChannelNumberToDL-EARFCN,

 id-OffsetOfNbiotChannelNumberToUL-EARFCN,

 id-AdditionalSpecialSubframeExtension-Info,

 id-BandwidthReducedSI,

 id-extended-e-RAB-MaximumBitrateDL,

 id-extended-e-RAB-MaximumBitrateUL,

 id-extended-e-RAB-GuaranteedBitrateDL,

 id-extended-e-RAB-GuaranteedBitrateUL,

 id-extended-uEaggregateMaximumBitRateDownlink,

 id-extended-uEaggregateMaximumBitRateUplink,

 id-E-RABUsageReport-Item,

 id-SecondaryRATUsageReport-Item,

 id-UEAppLayerMeasConfig,

 id-DL-scheduling-PDCCH-CCE-usage,

 id-UL-scheduling-PDCCH-CCE-usage,

 id-DownlinkPacketLossRate,

 id-UplinkPacketLossRate,

 id-serviceType,

 id-ProtectedEUTRAResourceIndication,

 id-NRS-NSSS-PowerOffset,

 id-NSSS-NumOccasionDifferentPrecoder,

 id-CNTypeRestrictions,

 id-BluetoothMeasurementConfiguration,

 id-WLANMeasurementConfiguration,

 id-ECGI,

 id-NRCGI,

 id-MeNBCoordinationAssistanceInformation,

 id-SgNBCoordinationAssistanceInformation,

 id-NRNeighbourInfoToAdd,

 id-LastNG-RANPLMNIdentity,

 id-BPLMN-ID-Info-EUTRA,

 id-NBIoT-UL-DL-AlignmentOffset,

 id-UnlicensedSpectrumRestriction,

 id-CarrierList,

 id-FrequencyShift7p5khz,

 id-NPRACHConfiguration,

 id-MDTConfigurationNR,

 id-CSI-RSTransmissionIndication,

 id-QoS-Mapping-Information,

 id-IntendedTDD-DL-ULConfiguration-NR,

 id-TraceCollectionEntityURI,

 id-SFN-Offset,

 id-AdditionLocationInformation,

 id-SSB-PositionsInBurst,

 id-NRCellPRACHConfig,

 id-ULCarrierList,

 id-TDDULDLConfigurationCommonNR,

 maxnoofBearers,

 maxCellineNB,

 maxEARFCN,

 maxEARFCNPlusOne,

 newmaxEARFCN,

 maxInterfaces,

 maxnoofBands,

 maxnoofBPLMNs,

 maxnoofAdditionalPLMNs,

 maxnoofCells,

 maxnoofEPLMNs,

 maxnoofEPLMNsPlusOne,

 maxnoofForbLACs,

 maxnoofForbTACs,

 maxnoofNeighbours,

 maxnoofPRBs,

 maxNrOfErrors,

 maxPools,

 maxnoofMBSFN,

 maxnoofTAforMDT,

 maxnoofCellIDforMDT,

 maxnoofMBMSServiceAreaIdentities,

 maxnoofMDTPLMNs,

 maxnoofCoMPHypothesisSet,

 maxnoofCoMPCells,

 maxUEReport,

 maxCellReport,

 maxnoofPA,

 maxCSIProcess,

 maxCSIReport,

 maxSubband,

 maxnooftimeperiods,

 maxnoofCellIDforQMC,

 maxnoofTAforQMC,

 maxnoofPLMNforQMC,

 maxUEsinengNBDU,

 maxnoofProtectedResourcePatterns,

 maxnoNRcellsSpectrumSharingWithE-UTRA,

 maxnoofNrCellBands,

 maxnoofBluetoothName,

 maxnoofWLANName,

 maxofNRNeighbours,

 maxnoofextBPLMNs,

 maxnoofTLAs,

 maxnoofGTPTLAs,

 maxnoofTNLAssociations,

 maxnoofCellsinCHO, maxnoofPC5QoSFlows,

 maxnoofSSBAreas,

 maxnoofNRSCSs,

 maxnoofNRPhysicalResourceBlocks,

 maxnoofNonAnchorCarrierFreqConfig

FROM X2AP-Constants

 Criticality,

 ProcedureCode,

 ProtocolIE-ID,

 TriggeringMessage

FROM X2AP-CommonDataTypes

 ProtocolExtensionContainer{},

 ProtocolIE-Single-Container{},

 X2AP-PROTOCOL-EXTENSION,

 X2AP-PROTOCOL-IES

FROM X2AP-Containers;

<<<<<<<<<<<<<<<<<<<< Next change >>>>>>>>>>>>>>>>>>>>

FDD-InfoNeighbourServedNRCell-Information ::= SEQUENCE {

 ul-NRFreqInfo NRFreqInfo,

 dl-NRFreqInfo NRFreqInfo,

 iE-Extensions ProtocolExtensionContainer { {FDD-InfoNeighbourServedNRCell-Information-ExtIEs} } OPTIONAL,

 ...

}

FDD-InfoNeighbourServedNRCell-Information-ExtIEs X2AP-PROTOCOL-EXTENSION ::= {

 { ID id-ULCarrierList CRITICALITY ignore EXTENSION NRCarrierList PRESENCE optional },

 ...

}

///////////////////////////////////////////////////////////////skip unrelated codes///////////////////////////////////////////////////////////////

-- N

///////////////////////////////////////////////////////////////skip unrelated codes///////////////////////////////////////////////////////////////

NRNeighbour-Information ::= SEQUENCE (SIZE (1.. maxofNRNeighbours))OF SEQUENCE {

 nrpCI NRPCI,

 nrCellID NRCGI,

 fiveGS-TAC FiveGS-TAC OPTIONAL,

 configured-TAC TAC OPTIONAL,

 measurementTimingConfiguration OCTET STRING,

 nRNeighbourModeInfo CHOICE {

 fdd FDD-InfoNeighbourServedNRCell-Information,

 tdd TDD-InfoNeighbourServedNRCell-Information,

 ...

 },

 iE-Extensions ProtocolExtensionContainer { {NRNeighbour-Information-ExtIEs} } OPTIONAL,

 ...

}

NRNeighbour-Information-ExtIEs X2AP-PROTOCOL-EXTENSION ::= {

 {ID id-CSI-RSTransmissionIndication CRITICALITY ignore EXTENSION EARFCNExtension PRESENCE optional}|

 {ID id-SSB-PositionsInBurst CRITICALITY ignore EXTENSION SSB-PositionsInBurst PRESENCE optional}|

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

 ...

}

<<<<<<<<<<<<<<<<<<<< Next change >>>>>>>>>>>>>>>>>>>>

TDD-InfoNeighbourServedNRCell-Information ::= SEQUENCE {

 nRFreqInfo NRFreqInfo,

 iE-Extensions ProtocolExtensionContainer { {TDD-InfoNeighbourServedNRCell-Information-ExtIEs} } OPTIONAL,

 ...

}

TDD-InfoNeighbourServedNRCell-Information-ExtIEs X2AP-PROTOCOL-EXTENSION ::= {

 {ID id-IntendedTDD-DL-ULConfiguration-NR CRITICALITY ignore EXTENSION IntendedTDD-DL-ULConfiguration-NR PRESENCE optional}|

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

 {ID id-CarrierList CRITICALITY ignore EXTENSION NRCarrierList PRESENCE optional},

 ...

}

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