**3GPP TSG-RAN WG3 Meeting #110-e *R3-20xxxx***

**E-meeting, 2 – 12 Nov 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.423** | **CR** | **0399** | **rev** | **2** | **Current version:** | **16.3.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | NPRACH configuration exchanging | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, CMCC, Ericsson, ZTE | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NB\_IOTenh3-Core | | | | |  | ***Date:*** | | | 2020-11-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | NR Cell PRACH Configuration and E-UTRA PRACH Configuration are exchanged over Xn interface to support RACH optimization, but the NPRACH configuration exchanging was missing. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce NPRACH configuration in *Served Cell Information E-UTRA* IE  Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has isolated impact with the previous version of the specification (same release) because it only related to NB-IoT SON.  This CR has an impact under functional point of view.  The impact can be considered isolated because the change affects the RACH optimization for NB-IoT. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Cannot support RACH optimziation for NB-IoT connecting to 5GC scenario. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.4.1.1, 8.4.2.2, 9.2.2.12, 9.2.2.xxx(new), 9.3.5, 9.3.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev-1: updated based on the latest version of specification. | | | | | | | | |

***--------------Start of the First Change-----------------***

### 8.4.1 Xn Setup

#### 8.4.1.1 General

The purpose of the Xn Setup procedure is to exchange application level configuration data needed for two NG-RAN nodes to interoperate correctly over the Xn-C interface.

NOTE 1: If Xn-C signalling transport is shared among multiple Xn-C interface instances, one Xn Setup procedure is issued per Xn-C interface instance to be setup, i.e. several Xn Setup procedures may be issued via the same TNL association after that TNL association has become operational.

NOTE 2: Exchange of application level configuration data also applies between two NG-RAN nodes in case the SN (i.e. the gNB) does not broadcast system information other than for radio frame timing and SFN, as specified in the TS 37.340 [8]. How to use this information when this option is used is not explicitly specified.

The procedure uses non UE-associated signalling.

#### 8.4.1.2 Successful Operation



Figure 8.4.1.2: Xn Setup, successful operation

***//skip the unchanged part***

If the *Cell and Capacity Assistance Information NR* IE or the *Cell and Capacity Assistance Information E-UTRA* IE is present in the XN SETUP RESPONSE message from the candidate NG-RAN node2, the NG-RAN node1 shall, if supported, store the collected information to be used for future NG-RAN node interface management.

If the *CSI-RS Transmission Indication* IE is contained in the XN SETUP REQUEST message, the NG-RAN node2 shall, if supported, take this IE into account for neighbour cell’s CSI-RS measurement.

If the *CSI-RS Transmission Indication* IE in the XN SETUP RESPONSE message, the NG-RAN node1 shall, if supported, take this IE into account for neighbour cell’s CSI-RS measurement.

The initiating NG-RAN node1 may include the *PRACH Configuration* IE (for served E-UTRA cells) or the *NR Cell PRACH Configuration* IE (for served NR cells) or the *NPRACH Configuration* IE (for served NB-IoT cells) in the XN SETUP REQUEST message. The candidate NG-RAN node2 may also include the *PRACH Configuration* IE (for served E-UTRA cells) or *NR Cell PRACH Configuration* IE (for served NR cells) or the *NPRACH Configuration* IE (for served NB-IoT cells in the XN SETUP RESPONSE message. The NG-RAN node receiving the IE may use this information for RACH optimisation.

The XN SETUP REQUEST message may contain for each cell served by NG-RAN node1 NPN related broadcast information. The XN SETUP RESPONSE message may contain for each cell served by NG-RAN node2 NPN related broadcast information.

***--------------Start of the Next Change-----------------***

### 8.4.2 NG-RAN node Configuration Update

#### 8.4.2.1 General

The purpose of the NG-RAN node Configuration Update procedure is to update application level configuration data needed for two NG-RAN nodes to interoperate correctly over the Xn-C interface.

NOTE: Update of application level configuration data also applies between two NG-RAN nodes in case the SN (i.e. the gNB) does not broadcast system information other than for radio frame timing and SFN, as specified in the TS 37.340 [8]. How to use this information when this option is used is not explicitly specified.

The procedure uses non UE-associated signalling.

#### 8.4.2.2 Successful Operation



Figure 8.4.2.2-1: NG-RAN node Configuration Update, successful operation

The NG-RAN node1 initiates the procedure by sending the NG-RAN NODE CONFIGURATION UPDATE message to a peer NG-RAN node2.

***//skip the unchanged part***

**Update of Served Cell Information E-UTRA:**

- If *Served Cells E-UTRA To Add* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall add cell information according to the information in the *Served Cell Information* *E-UTRA* IE.

- If *Served Cells E-UTRA To Modify* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall modify information of cell indicated by *Old ECGI* IE according to the information in the *Served Cell Information* *E-UTRA* IE.

- When either served cell information or neighbour information of an existing served cell in NG-RAN node1 need to be updated, the whole list of neighbouring cells, if any, shall be contained in the *Neighbour Information E-UTRA* IE. The NG-RAN node2 shall overwrite the served cell information and the whole list of neighbour cell information for the affected served cell.

- If the *Deactivation Indication* IE is contained in the *Served Cells E-UTRA To Modify* IE, it indicates that the concerned cell was switched off to lower energy consumption.

- If the *Served Cells E-UTRA To Delete* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall delete information of cell indicated by *Old ECGI* IE.

- If the *Protected E-UTRA Resource Indication* IE is included into the NG-RAN NODE CONFIGURATION UPDATE (inside the *Served Cell Information* *E-UTRA* IE), the receiving gNB should take this into account for cell-level resource coordination with the ng-eNB. The gNB shall consider the received *Protected E-UTRA Resource Indication* IE content valid until reception of a new update of the IE for the same ng-eNB. The protected resource pattern indicated in the *Protected E-UTRA Resource Indication* IE is not valid in subframes indicated by the *Reserved Subframes* IE (contained in E-UTRA - NR CELL RESOURCE COORDINATION REQUEST messages), as well as in the non-control region of the MBSFN subframes i.e. it is valid only in the control region therein. The size of the control region of MBSFN subframes is indicated in the *Protected E-UTRA Resource Indication* IE.

- If the *PRACH Configuration* IE is contained in the *Served Cell Information E-UTRA* IE in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node receiving the IE may use this information for RACH optimisation.

- If the *NPRACH Configuration* IE is contained in the *Served Cell Information E-UTRA* IE in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node receiving the IE may use this information for RACH optimisation.

**Update of TNL addresses for SCTP associations:**

If the *TNL Association to Add List* IE is included in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 shall, if supported, use it to establish the TNL association(s) with the NG-RAN node1. The NG-RAN node2 shall report to the NG-RAN node1, in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message, the successful establishment of the TNL association(s) with the NG-RAN node1 as follows:

- A list of successfully established TNL associations shall be included in the *TNL Association Setup List* IE;

- A list of TNL associations that failed to be established shall be included in the *TNL Association Failed to Setup List* IE.

If the *TNL Association to Remove List* IE is included in the NG-RAN NODE CONFIGURATION UPDATE message the NG-RAN node2 shall, if supported, initiate removal of the TNL association(s) indicated by the received Transport Layer information towards the NG-RAN node1.

If the *TNL Association to Update List* IE is included in the NG-RAN NODE CONFIGURATION UPDATE message the NG-RAN node2 shall, if supported, update the TNL association(s) indicated by the received Transport Layer information towards the NG-RAN node1.

***--------------Start of the Next Change-----------------***

#### 9.2.2.12 Served Cell Information E-UTRA

This IE contains cell configuration information of an E-UTRA cell that a neighbour NG-RAN node may need for the Xn AP interface.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| E-UTRA PCI | M |  | INTEGER (0..503, …) | E-UTRA Physical Cell ID | – |  |
| ECGI | M |  | E-UTRA CGI  9.2.2.8 |  | – |  |
| TAC | M |  | 9.2.2.5 | Tracking Area Code | – |  |
| //skip the unchanged part |  |  |  |  |  |  |
| **Broadcast PLMN Identity Info List E-UTRA** |  | *0..<maxnoofEUTRABPLMNs>* |  | This IE corresponds to the *cellAccessRelatedInfoList-5GC* IE in *SIB1* as specified in TS 36.331 [14]. All PLMN Identities and associated information contained in the *cellAccessRelatedInfoList-5GC* IE are included and provided in the same order as broadcast in SIB1. | YES | ignore |
| **>Broadcast PLMNs** |  | *1..<maxnoofEUTRABPLMNs>* |  | Broadcast PLMNs in SIB1 associated to the *E-UTRA Cell Identity* IE. | – |  |
| >>PLMN Identity | M |  | 9.2.2.4 |  | – |  |
| >TAC | M |  | 9.2.2.5 |  | – |  |
| >E-UTRA Cell Identity | M |  | BIT STRING (SIZE(28)) |  | – |  |
| >RANAC | O |  | RAN Area Code  9.2.2.6 |  | – |  |
| NPRACH Configuration | O |  | NPRACH Configuration  9.2.2.xxx |  | YES | ignore |

***--------------Start of the Next Change-----------------***

#### 9.2.2.xxx NPRACH Configuration

This IE indicates the NPRACH Configuration.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *FDDorTDD* | M |  |  |  |
| >*FDD* |  |  |  |  |
| >>NPRACH-CP-Length | M | ENUMERATED {us66dot7, us266dot7, …} |  |  |
| >>Anchor Carrier NPRACH Configuration | M |  | OCTET STRING | Includes the *NPRACH-ParametersList-NB-r13* IE as defined in 6.7.3.2 ofTS 36.331 [14]. |
| >>Anchor Carrier EDT NPRACH Configuration | O |  | OCTET STRING | Includes the *NPRACH-ParametersList-NB-r14* IE as defined in 6.7.3.2 ofTS 36.331 [14]. |
| >>Anchor Carrier Format 2 NPRACH Configuration | O |  | OCTET STRING | Includes the *NPRACH-ParametersListFmt2-NB-r15* IE as defined in 6.7.3.2 ofTS 36.331 [14] |
| >>Anchor Carrier Format 2 EDT NPRACH Configuration | O |  | OCTET STRING | Includes the *NPRACH-ParametersListFmt2-NB-r15* IE as defined in 6.7.3.2 ofTS 36.331 [14] |
| >>Non Anchor Carrier NPRACH Configuration | O |  | OCTET STRING | Includes the *UL-ConfigCommonList-NB-r14* IE as defined in 6.7.3.1 ofTS 36.331 [14]. |
| >>Non Anchor Carrier Format 2 NPRACH Configuration | O |  | OCTET STRING | Includes the *UL-ConfigCommonList-NB-v1530* IE as defined in 6.7.3.1 ofTS 36.331 [14]. |
| >*TDD* |  |  |  |  |
| >>nprach-PreambleFormat | M | ENUMERATED {fmt0, fmt1, fmt2, fmt0-a, fmt1-a, …} |  |  |
| >>Anchor Carrier NPRACH Configuration TDD | M |  | OCTET STRING | Includes the *NPRACH-ParametersListTDD-NB-r15* IE as defined in 6.7.3.2 ofTS 36.331 [14] |
| **>>Non Anchor Carrier Frequency Configuration list** |  | *0..< maxnoofNonAnchorCarrierFreqConfig*> |  |  |
| >>> Non Anchor Carrier Frequency | M |  | OCTET STRING | Includes the *DL-CarrierConfigCommon-NB-r14* IE as defined in 6.7.3.2 ofTS 36.331 [14] |
| >>Non Anchor Carrier NPRACH Configuration TDD | O |  | OCTET STRING | Includes the *UL-ConfigCommonListTDD-NB-r15* IE as defined in 6.7.3.1 ofTS 36.331 [14]. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofNonAnchorCarrierFreqConfig | Maximum no. of non-Anchor Carrier Frequency Configurations. Value is 15. |

***--------------Start of the Next Change-----------------***

### 9.3.5 Information Element definitions

-- ASN1START

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

--

-- Information Element Definitions

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

XnAP-IEs {

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

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

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

id-CNTypeRestrictionsForEquivalent,

id-CNTypeRestrictionsForServing,

id-Additional-UL-NG-U-TNLatUPF-List,

id-ConfiguredTACIndication,

id-AlternativeQoSParaSetList,

id-CurrentQoSParaSetIndex,

id-DefaultDRB-Allowed,

id-DLCarrierList,

id-EndpointIPAddressAndPort,

id-ExtendedTAISliceSupportList,

id-FiveGCMobilityRestrictionListContainer,

id-SecondarydataForwardingInfoFromTarget-List,

id-LastE-UTRANPLMNIdentity,

id-IntendedTDD-DL-ULConfiguration-NR,

id-MaxIPrate-DL,

id-SecurityResult,

id-OldQoSFlowMap-ULendmarkerexpected,

id-PDUSessionCommonNetworkInstance,

id-BPLMN-ID-Info-EUTRA,

id-BPLMN-ID-Info-NR,

id-DRBsNotAdmittedSetupModifyList,

id-Secondary-MN-Xn-U-TNLInfoatM,

id-ULForwardingProposal,

id-DRB-IDs-takenintouse,

id-SplitSessionIndicator,

id-NonGBRResources-Offered,

id-MDT-Configuration,

id-TraceCollectionEntityURI,

id-NPN-Broadcast-Information,

id-NPNPagingAssistanceInformation,

id-NPNMobilityInformation,

id-NPN-Support,

id-LTEUESidelinkAggregateMaximumBitRate,

id-NRUESidelinkAggregateMaximumBitRate,

id-ExtendedRATRestrictionInformation,

id-QoSMonitoringRequest,

id-DAPSRequestInfo,

id-OffsetOfNbiotChannelNumberToDL-EARFCN,

id-OffsetOfNbiotChannelNumberToUL-EARFCN,

id-NBIoT-UL-DL-AlignmentOffset,

id-TDDULDLConfigurationCommonNR,

id-CarrierList,

id-ULCarrierList,

id-FrequencyShift7p5khz,

id-SSB-PositionsInBurst,

id-NRCellPRACHConfig,

id-Redundant-UL-NG-U-TNLatUPF,

id-Redundant-DL-NG-U-TNLatNG-RAN,

id-CNPacketDelayBudgetDownlink,

id-CNPacketDelayBudgetUplink,

id-ExtendedPacketDelayBudget,

id-Additional-Redundant-UL-NG-U-TNLatUPF-List,

id-RedundantCommonNetworkInstance,

id-TSCTrafficCharacteristics,

id-RedundantQoSFlowIndicator,

id-Additional-PDCP-Duplication-TNL-List,

id-RedundantPDUSessionInformation,

id-UsedRSNInformation,

id-RLCDuplicationInformation,

id-CSI-RSTransmissionIndication,

id-UERadioCapabilityID,

id-secondary-SN-UL-PDCP-UP-TNLInfo,

id-pdcpDuplicationConfiguration,

id-duplicationActivation,

id-NPRACHConfiguration,

maxEARFCN,

maxnoofAllowedAreas,

maxnoofAMFRegions,

maxnoofAoIs,

maxnoofBPLMNs,

maxnoofCAGs,

maxnoofCAGsperPLMN,

maxnoofCellsinAoI,

maxnoofCellsinNG-RANnode,

maxnoofCellsinRNA,

maxnoofCellsinUEHistoryInfo,

maxnoofCellsUEMovingTrajectory,

maxnoofDRBs,

maxnoofEPLMNs,

maxnoofEPLMNsplus1,

maxnoofEUTRABands,

maxnoofEUTRABPLMNs,

maxnoofForbiddenTACs,

maxnoofMBSFNEUTRA,

maxnoofMultiConnectivityMinusOne,

maxnoofNeighbours,

maxnoofNIDs,

maxnoofNRCellBands,

maxnoofPDUSessions,

maxnoofPLMNs,

maxnoofProtectedResourcePatterns,

maxnoofQoSFlows,

maxnoofQoSParaSets,

maxnoofRANAreaCodes,

maxnoofRANAreasinRNA,

maxnoofSCellGroups,

maxnoofSCellGroupsplus1,

maxnoofSliceItems,

maxnoofExtSliceItems,

maxnoofSNPNIDs,

maxnoofsupportedTACs,

maxnoofsupportedPLMNs,

maxnoofTAI,

maxnoofTAIsinAoI,

maxnoofTNLAssociations,

maxnoofUEContexts,

maxNRARFCN,

maxNrOfErrors,

maxnoofRANNodesinAoI,

maxnooftimeperiods,

maxnoofslots,

maxnoofExtTLAs,

maxnoofGTPTLAs,

maxnoofCHOcells,

maxnoofPC5QoSFlows,

maxnoofSSBAreas,

maxnoofNRSCSs,

maxnoofPhysicalResourceBlocks,

maxnoofRACHReports,

maxnoofAdditionalPDCPDuplicationTNL,

maxnoofRLCDuplicationstate,

maxnoofBluetoothName,

maxnoofCellIDforMDT,

maxnoofMDTPLMNs,

maxnoofTAforMDT,

maxnoofWLANName,

maxnoofSensorName,

maxnoofNeighPCIforMDT,

maxnoofFreqforMDT,

maxnoofNonAnchorCarrierFreqConfig

FROM XnAP-Constants

Criticality,

ProcedureCode,

ProtocolIE-ID,

TriggeringMessage

FROM XnAP-CommonDataTypes

ProtocolExtensionContainer{},

ProtocolIE-Single-Container{},

XNAP-PROTOCOL-EXTENSION,

XNAP-PROTOCOL-IES

FROM XnAP-Containers;

***//skip the unchanged part***

NPN-Support ::= CHOICE {

sNPN NPN-Support-SNPN,

choice-Extensions ProtocolIE-Single-Container { {NPN-Support-ExtIEs} }

}

NPN-Support-ExtIEs XNAP-PROTOCOL-IES ::= {

...

}

NPN-Support-SNPN ::= SEQUENCE {

nid NID,

ie-Extension ProtocolExtensionContainer { {NPN-Support-SNPN-ExtIEs} } OPTIONAL,

...

}

NPN-Support-SNPN-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

NPRACHConfiguration::= SEQUENCE {

fdd-or-tdd CHOICE {

fdd NPRACHConfiguration-FDD,

tdd NPRACHConfiguration-TDD,

...

},

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

...

}

NPRACHConfiguration-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

NPRACHConfiguration-FDD::= SEQUENCE {

nprach-CP-length NPRACH-CP-Length,

anchorCarrier-NPRACHConfig OCTET STRING,

anchorCarrier-EDT-NPRACHConfig OCTET STRING OPTIONAL,

anchorCarrier-Format2-NPRACHConfig OCTET STRING OPTIONAL,

anchorCarrier-Format2-EDT-NPRACHConfig OCTET STRING OPTIONAL,

non-anchorCarrier-NPRACHConfig OCTET STRING OPTIONAL,

non-anchorCarrier-Format2-NPRACHConfig OCTET STRING OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { NPRACHConfiguration-FDD-ExtIEs} } OPTIONAL,

...

}

NPRACHConfiguration-FDD-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

NPRACHConfiguration-TDD::= SEQUENCE {

nprach-preambleFormat NPRACH-preambleFormat,

anchorCarrier-NPRACHConfigTDD OCTET STRING,

non-anchorCarrierFequencyConfiglist Non-AnchorCarrierFrequencylist OPTIONAL,

non-anchorCarrier-NPRACHConfigTDD OCTET STRING OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { NPRACHConfiguration-TDD-ExtIEs} } OPTIONAL,

...

}

NPRACHConfiguration-TDD-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

NPRACH-CP-Length::= ENUMERATED {

us66dot7,

us266dot7,

...

}

NPRACH-preambleFormat::= ENUMERATED {fmt0,fmt1,fmt2,fmt0a,fmt1a,...}

Non-AnchorCarrierFrequencylist ::= SEQUENCE (SIZE(1..maxnoofNonAnchorCarrierFreqConfig)) OF

SEQUENCE {

non-anchorCarrioerFrquency OCTET STRING,

iE-Extensions ProtocolExtensionContainer { { Non-AnchorCarrierFrequencylist-ExtIEs} } OPTIONAL,

...

}

Non-AnchorCarrierFrequencylist-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

NR-Cell-Identity ::= BIT STRING (SIZE (36))

NG-RAN-Cell-Identity-ListinRANPagingArea ::= SEQUENCE (SIZE (1..maxnoofCellsinRNA)) OF NG-RAN-Cell-Identity

NR-CGI ::= SEQUENCE {

plmn-id PLMN-Identity,

nr-CI NR-Cell-Identity,

iE-Extension ProtocolExtensionContainer { {NR-CGI-ExtIEs} } OPTIONAL,

...

}

***//skip the unchanged part***

-- Served Cells E-UTRA IEs

ServedCellInformation-E-UTRA ::= SEQUENCE {

e-utra-pci E-UTRAPCI,

e-utra-cgi E-UTRA-CGI,

tac TAC,

ranac RANAC OPTIONAL,

broadcastPLMNs SEQUENCE (SIZE(1..maxnoofBPLMNs)) OF ServedCellInformation-E-UTRA-perBPLMN,

e-utra-mode-info ServedCellInformation-E-UTRA-ModeInfo,

numberofAntennaPorts NumberOfAntennaPorts-E-UTRA OPTIONAL,

prach-configuration E-UTRAPRACHConfiguration OPTIONAL,

mBSFNsubframeInfo MBSFNSubframeInfo-E-UTRA OPTIONAL,

multibandInfo E-UTRAMultibandInfoList OPTIONAL,

freqBandIndicatorPriority ENUMERATED {not-broadcast, broadcast, ...} OPTIONAL,

bandwidthReducedSI ENUMERATED {scheduled, ...} OPTIONAL,

protectedE-UTRAResourceIndication ProtectedE-UTRAResourceIndication OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {ServedCellInformation-E-UTRA-ExtIEs} } OPTIONAL,

...

}

ServedCellInformation-E-UTRA-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

{ ID id-BPLMN-ID-Info-EUTRA CRITICALITY ignore EXTENSION BPLMN-ID-Info-EUTRA PRESENCE optional }|

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

...

}

ServedCellInformation-E-UTRA-perBPLMN ::= SEQUENCE {

plmn-id PLMN-Identity,

iE-Extensions ProtocolExtensionContainer { {ServedCellInformation-E-UTRA-perBPLMN-ExtIEs} } OPTIONAL,

...

}

ServedCellInformation-E-UTRA-perBPLMN-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

ServedCellInformation-E-UTRA-ModeInfo ::= CHOICE {

fdd ServedCellInformation-E-UTRA-FDDInfo,

tdd ServedCellInformation-E-UTRA-TDDInfo,

choice-extension ProtocolIE-Single-Container{ {ServedCellInformation-E-UTRA-ModeInfo-ExtIEs} }

}

***--------------Start of the Next Change-----------------***

### 9.3.7 Constant definitions

-- ASN1START

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

--

-- Constant definitions

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

XnAP-Constants {

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

ngran-Access (22) modules (3) xnap (2) version1 (1) xnap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

ProcedureCode,

ProtocolIE-ID

FROM XnAP-CommonDataTypes;

***//skip the unchanged part***

maxnoofslots INTEGER ::= 5120

maxnoofExtTLAs INTEGER ::= 16

maxnoofGTPTLAs INTEGER ::= 16

maxnoofCHOcells INTEGER ::= 8

maxnoofPC5QoSFlows INTEGER ::= 2064

maxnoofSSBAreas INTEGER ::= 64

maxnoofRACHReports INTEGER ::= 64

maxnoofNRSCSs INTEGER ::= 5

maxnoofPhysicalResourceBlocks INTEGER ::= 275

maxnoofAdditionalPDCPDuplicationTNL INTEGER ::= 2

maxnoofRLCDuplicationstate INTEGER ::= 3

maxnoofWLANName INTEGER ::= 4

maxnoofNonAnchorCarrierFreqConfig INTEGER ::= 15

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

--

-- IEs

--

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

id-ActivatedServedCells ProtocolIE-ID ::= 0

id-ActivationIDforCellActivation ProtocolIE-ID ::= 1

id-admittedSplitSRB ProtocolIE-ID ::= 2

***//skip the unchanged part***

id-MDT-Configuration ProtocolIE-ID ::= 224

id-MDTPLMNList ProtocolIE-ID ::= 225

id-TraceCollectionEntityURI ProtocolIE-ID ::= 226

id-UERadioCapabilityID ProtocolIE-ID ::= 227

id-CSI-RSTransmissionIndication ProtocolIE-ID ::= 228

id-SNTriggered ProtocolIE-ID ::= 229

id-DLCarrierList ProtocolIE-ID ::= 230

id-ExtendedTAISliceSupportList ProtocolIE-ID ::= 231

id-cellAssistanceInfo-EUTRA ProtocolIE-ID ::= 232

id-ConfiguredTACIndication ProtocolIE-ID ::= 233

id-secondary-SN-UL-PDCP-UP-TNLInfo ProtocolIE-ID ::= 234

id-pdcpDuplicationConfiguration ProtocolIE-ID ::= 235

id-duplicationActivation ProtocolIE-ID ::= 236

id-NPRACHConfiguration ProtocolIE-ID ::= xxx

END

-- ASN1STOP

***--------------End of the Changes-----------------***