**3GPP TSG-RAN WG3 Meeting #115e *R3-221802***

**, 21st February – 3rd March, 2022**

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| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** | **0502** | **Rev** | **7** | **Current version:** |  |  |
|  |
| *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 |  |

|  |
| --- |
|  |
| ***Title:***  | Handling PDCP Duplication |
|  |  |
| ***Source to WG:*** | Ericsson, Intel Corporation, Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | R3 |
|  |  |
| ***Work item code:*** | NR\_IIOT-Core |  | ***Date:*** | 2022-02-10 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | There is a need to indicate if the Rel 16 dynamic MAC UE control for UL PDCP duplication is used in the NG-RAN node. |
|  |  |
| ***Summary of change:*** | For SN terminated PDCP, includes the indication if M-NG-RAN is allowed to perfrom MAC CE control; For MN terminated PDCP, includes the indication if S-NG-RAN is allowed to perfrom MAC CE control.Include if the S-NG-RAN node accepts the indication.Add in the RLC Duplication Information the indication if the MAC CE control is allowed.Impact Analysis:The CR has limited impact on the procedures.The change is backwards compatible. |
|  |  |
| ***Consequences if not approved:*** | The Rel 16 dynamic MAC CE control is not possible to use. |
|  |  |
| ***Clauses affected:*** | 9.2.3.111, 9.3.5, 9.3.7 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 38.473 CR 0690TS 38.425 CR 0130 |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

#### 9.2.3.111 RLC Duplication Information

This IE indicates the RLC duplication configuration in case that the indicated DRB is configured with more than two RLC entities as specified in TS 38.331 [9].

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| **RLC Activation State List** |  | *1* |  |  | – |  |
| **>RLC Activation State Items** |  | *1 .. <* *maxnoofRLCDuplicationstate >* |  | This IE indicates information on the initial secondary RLC activation state of UL PDCP duplication. Each position in the list represents a secondary RLC entity in ascending order by the LCH ID in the order of MCG and SCG. | – |  |
| >>Duplication State | M |  | ENUMERATED (Active, Inactive, ...) |  | – |  |
| Primary RLC Indication | O |  | ENUMERATED (True, False, …)  | This IE is present when DC based PDCP duplication is configured. This IE indicates whether the primary RLC entity located at the assisting node. | – |  |
| MAC CE Control | O |  | ENUMERATED (allowed, disallowed, not-relevant, …) | This IE indicates if the assisting node is allowed to control the MAC CE UL PDCP duplication.The value “not-relevant” means the MAC CE UL PDCP is not controlled by PDCP entity. | Yes | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofRLCDuplicationstate | Maximum no of Secondary RLC entities. Value is 3. |

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### 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,

 id-QoSFlowsMappedtoDRB-SetupResponse-MNterminated,

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

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

 id-SFN-Offset,

 id-MAC-CE-Control,

 maxEARFCN,

 maxnoofAllowedAreas,

 maxnoofAMFRegions,

 maxnoofAoIs,

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-- M

MAC-CE-Control ::= ENUMERATED{

 allowed,

 disallowed,

 not-relevant,

 ...

}

M1Configuration ::= SEQUENCE {

 m1reportingTrigger M1ReportingTrigger,

 m1thresholdeventA2 M1ThresholdEventA2 OPTIONAL,

-- Included in case of event-triggered, or event-triggered periodic reporting for measurement M1

 m1periodicReporting M1PeriodicReporting OPTIONAL,

-- Included in case of periodic or event-triggered periodic reporting

 iE-Extensions ProtocolExtensionContainer { { M1Configuration-ExtIEs} } OPTIONAL,

 ...

}

M1Configuration-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

M1PeriodicReporting ::= SEQUENCE {

 reportInterval ReportIntervalMDT,

 reportAmount ReportAmountMDT,

 iE-Extensions ProtocolExtensionContainer { { M1PeriodicReporting-ExtIEs} } OPTIONAL,

 ...

}

M1PeriodicReporting-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

M1ReportingTrigger ::= ENUMERATED{

 periodic,

 a2eventtriggered,

 a2eventtriggered-periodic,

 ...

}

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-- R

RACHReportInformation ::= SEQUENCE (SIZE(1.. maxnoofRACHReports)) OF RACHReportList-Item

RACHReportList-Item ::= SEQUENCE {

 rACHReport RACHReportContainer,

 iE-Extensions ProtocolExtensionContainer { { RACHReportList-Item-ExtIEs} } OPTIONAL,

 ...

}

RACHReportList-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

RACHReportContainer ::= OCTET STRING

RadioResourceStatus ::= CHOICE {

 ng-eNB-RadioResourceStatus NG-eNB-RadioResourceStatus,

 gNB-RadioResourceStatus GNB-RadioResourceStatus,

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

}

RadioResourceStatus-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

RANAC ::= INTEGER (0..255)

RANAreaID ::= SEQUENCE {

 tAC TAC,

 rANAC RANAC OPTIONAL,

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

 ...

}

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

 ...

}

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RLC-Status-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

RLCDuplicationInformation ::= SEQUENCE {

 rLCDuplicationStateList RLCDuplicationStateList,

 rLC-PrimaryIndicator ENUMERATED {true, false} OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {RLCDuplicationInformation-ItemExtIEs} } OPTIONAL

}

RLCDuplicationInformation-ItemExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 { ID id-MAC-CE-Control CRITICALITY reject EXTENSION MAC-CE-Control PRESENCE optional},

 ...

}

RLCDuplicationStateList ::= SEQUENCE (SIZE(1..maxnoofRLCDuplicationstate)) OF RLCDuplicationState-Item

RLCDuplicationState-Item ::= SEQUENCE {

 duplicationState ENUMERATED {active,inactive, ...},

 iE-Extensions ProtocolExtensionContainer { {RLCDuplicationState-ItemExtIEs } } OPTIONAL,

 ...

}

RLCDuplicationState-ItemExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

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### 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;

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

--

-- Elementary Procedures

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id-UL-scheduling-PDCCH-CCE-usage ProtocolIE-ID ::= 241

id-SFN-Offset ProtocolIE-ID ::= 242

id-QoSMonitoringDisabled ProtocolIE-ID ::= 243

id-ExtendedUEIdentityIndexValue ProtocolIE-ID ::= 244

id-PagingeDRXInformation ProtocolIE-ID ::= 245

id-CHO-MRDC-EarlyDataForwarding ProtocolIE-ID ::= 246

id-SCGIndicator ProtocolIE-ID ::= 247

id-UESpecificDRX ProtocolIE-ID ::= 248

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id-MAC-CE-Control ProtocolIE-ID ::= 2xx

END

-- ASN1STOP