**3GPP TSG-RAN2 Meeting #113-E *R2-210xxxx***

**E-meeting, January 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **38.331** | **CR** | **2301** | **rev** | **1** | **Current version:** | **16.3.1** |  |
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| *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 | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | CR on co-configuration of Rel-16 features |
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| ***Source to WG:*** | OPPO |
| ***Source to TSG:*** | RAN2 |
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| ***Work item code:*** | NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, LTE\_NR\_DC\_CA\_enh-Core |  | ***Date:*** | 2021-01-04 |
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| ***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 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)* |
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| ***Reason for change:*** | 1. In section 5.8.8, the operation on *t316* (which was introduced for fast MCG recovery in DC scenario) is included. However, according to RAN2#110 and RAN2#111 agreement, the support on NR sidelink in MR-DC achitecture has been ruled out.
2. In *daps-Config*, the configuration restriction does not include sidelink, i.e., the co-configuration of NR SL and DAPS is allowed based on the current spec. However, since RAN2#110/111 has ruled out the support of NR SL in DC scenario, similar restriction is applicable to DAPS.
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| ***Summary of change:*** | 1. In section 5.8.8, remove the description on *t316* for NR sidelink.
2. In section 6.3.2, for *daps-Config*, clarify the configuration is not allowed when NR SL is configured.

**Impact analysis**Impacted 5G architecture options:NE-DC, NR DC, NR SAImpacted functionality:CHO, DAPS, NR SL, DCCAInter-operability: 1. If UE implements according to the CR and the network does not, the problem remains, i.e., it is not aligned with RAN2 conclusion.
2. If the network implements according to the CR and the UE does not, the is no inter-operability issue..
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| ***Consequences if not approved:*** | 1. Misalignment between stage-3 spec and RAN2 agreement.
2. In section 6.3.2, for *daps-Config*, no restriction on the co-configuration of DAPS and NR SL.
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| ***Clauses affected:*** | 5.8.8, 6.3.2 |
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|  | **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 ...  |
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| ***Other comments:*** |  |
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| ***This CR's revision history:*** |  |

*Start Change*

5.8.8 Sidelink communication transmission

A UE capable of NR sidelink communication that is configured by upper layers to transmit NR sidelink communication and has related data to be transmitted shall:

1> if the conditions for NR sidelink communication operation as defined in 5.8.2 are met:

2> if the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*:

3> if the UE is in RRC\_CONNECTED and uses the frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message:

4> if the UE is configured with *sl-ScheduledConfig*:

5> if T310 for MCG or T311 is running; and if *sl-TxPoolExceptional* is included in *sl-FreqInfoList* for the concerned frequency in *SIB12* or included in *sl-ConfigDedicatedNR* in *RRCReconfiguration*; or

5> if T301 is running and the cell on which the UE initiated RRC connection re-establishment provides *SIB12* including *sl-TxPoolExceptional* for the concerned frequency; or

5> if T304 for MCG is running and the UE is configured with *sl-TxPoolExceptional* included in *sl-ConfigDedicatedNR* for the concerned frequency in *RRCReconfiguration*:

6> configure lower layers to perform the sidelink resource allocation mode 2 based on random selection using the pool of resources indicated by *sl-TxPoolExceptional* as defined in TS 38.321 [3];

5> else:

6> configure lower layers to perform the sidelink resource allocation mode 1 for NR sidelink communication;

5> if T311 is running, configure the lower layers to release the resources indicated by *rrc-ConfiguredSidelinkGrant* (if any);

4> if the UE is configured with *sl-UE-SelectedConfig*:

5> if a result of sensing on the resources configured in *sl-TxPoolSelectedNormal* for the concerned frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* is not available in accordance with TS 38.214 [19];

6> if *sl-TxPoolExceptional* for the concerned frequency is included in *RRCReconfiguration*; or

6> if the PCell provides *SIB12* including *sl-TxPoolExceptional* in *sl-FreqInfoList* for the concerned frequency:

7> configure lower layers to perform the sidelink resource allocation mode 2 based on random selection using the pool of resources indicated by *sl-TxPoolExceptional* as defined in TS 38.321 [3];

5> else, if the *sl-TxPoolSelectedNormal* for the concerned frequency is included in the *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

6> configure lower layers to perform the sidelink resource allocation mode 2 based on sensing (as defined in TS 38.321 [3] and TS 38.214 [19]) using the resource pools indicated by *sl-TxPoolSelectedNormal* for the concerned frequency;

3> else:

4> if the cell chosen for NR sidelink communication transmission provides *SIB12*:

5> if *SIB12* includes *sl-TxPoolSelectedNormal* for the concerned frequency,and a result of sensing on the resources configured in the *sl-TxPoolSelectedNormal* is available in accordance with TS 38.214 [19]

6> configure lower layers to perform the sidelink resource allocation mode 2 based on sensing using the pool of resources indicated by *sl-TxPoolSelectedNormal* for the concerned frequency as defined in TS 38.321 [3];

5> else if *SIB12* includes *sl-TxPoolExceptional* for the concerned frequency:

6> from the moment the UE initiates RRC connection establishment or RRC connection resume, until receiving an *RRCReconfiguration* including *sl-ConfigDedicatedNR*, or receiving an *RRCRelease* or an *RRCReject*; or

6> if a result of sensing on the resources configured in *sl-TxPoolSelectedNormal* for the concerned frequency in *SIB12* is not available in accordance with TS 38.214 [19]:

7> configure lower layers to perform the sidelink resource allocation mode 2 based on random selection (as defined in TS 38.321 [3] and TS 38.214 [19]) using one of the resource pools indicated by *sl-TxPoolExceptional* for the concerned frequency;

2> else:

3> configure lower layers to perform the sidelink resource allocation mode 2 based on sensing (as defined in TS 38.321 [3] and TS 38.213 [13]) using the resource pool indicated by *sl-TxPoolSelectedNormal* in *SidelinkPreconfigNR* for the concerned frequency.

The UE capable of NR sidelink communication that is configured by upper layers to transmit NR sidelink communication shall perform sensing on all pools of resources which may be used for transmission of the sidelink control information and the corresponding data. The pools of resources are indicated by *SidelinkPreconfigNR*, *sl-TxPoolSelectedNormal* in *sl-ConfigDedicatedNR*, or *sl-TxPoolSelectedNormal* in *SIB12* for the concerned frequency, as configured above.

*Next Change*

– *RadioBearerConfig*

The IE *RadioBearerConfig* is used to add, modify and release signalling and/or data radio bearers. Specifically, this IE carries the parameters for PDCP and, if applicable, SDAP entities for the radio bearers.

***RadioBearerConfig* information element**

-- ASN1START

-- TAG-RADIOBEARERCONFIG-START

RadioBearerConfig ::= SEQUENCE {

 srb-ToAddModList SRB-ToAddModList OPTIONAL, -- Cond HO-Conn

 srb3-ToRelease ENUMERATED{true} OPTIONAL, -- Need N

 drb-ToAddModList DRB-ToAddModList OPTIONAL, -- Cond HO-toNR

 drb-ToReleaseList DRB-ToReleaseList OPTIONAL, -- Need N

 securityConfig SecurityConfig OPTIONAL, -- Need M

 ...

}

SRB-ToAddModList ::= SEQUENCE (SIZE (1..2)) OF SRB-ToAddMod

SRB-ToAddMod ::= SEQUENCE {

 srb-Identity SRB-Identity,

 reestablishPDCP ENUMERATED{true} OPTIONAL, -- Need N

 discardOnPDCP ENUMERATED{true} OPTIONAL, -- Need N

 pdcp-Config PDCP-Config OPTIONAL, -- Cond PDCP

 ...

}

DRB-ToAddModList ::= SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod

DRB-ToAddMod ::= SEQUENCE {

 cnAssociation CHOICE {

 eps-BearerIdentity INTEGER (0..15),

 sdap-Config SDAP-Config

 } OPTIONAL, -- Cond DRBSetup

 drb-Identity DRB-Identity,

 reestablishPDCP ENUMERATED{true} OPTIONAL, -- Need N

 recoverPDCP ENUMERATED{true} OPTIONAL, -- Need N

 pdcp-Config PDCP-Config OPTIONAL, -- Cond PDCP

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 daps-Config-r16 ENUMERATED{true} OPTIONAL -- Cond DAPS

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}

DRB-ToReleaseList ::= SEQUENCE (SIZE (1..maxDRB)) OF DRB-Identity

SecurityConfig ::= SEQUENCE {

 securityAlgorithmConfig SecurityAlgorithmConfig OPTIONAL, -- Cond RBTermChange1

 keyToUse ENUMERATED{master, secondary} OPTIONAL, -- Cond RBTermChange

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}

-- TAG-RADIOBEARERCONFIG-STOP

-- ASN1STOP

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| ***DRB-ToAddMod* field descriptions** |
| ***cnAssociation***Indicates if the bearer is associated with the *eps-bearerIdentity* (when connected to EPC) or *sdap-Config* (when connected to 5GC). |
| ***daps-Config***Indicates that the bearer is configured as DAPS bearer. |
| ***drb-Identity***In case of DC, the DRB identity is unique within the scope of the UE, i.e. an MCG DRB cannot use the same value as a split DRB. For a split DRB the same identity is used for the MCG and SCG parts of the configuration. |
| ***eps-BearerIdentity***The EPS bearer ID determines the EPS bearer. |
| ***reestablishPDCP***Indicates that PDCP should be re-established. Network sets this to *true* whenever the security key used for this radio bearer changes. Key change could for example be due to termination point change for the bearer, reconfiguration with sync, resuming an RRC connection, or the first reconfiguration after reestablishment. It is also applicable for LTE procedures when NR PDCP is configured. Network doesn't include this field for DRB if the bearer is configured as DAPS bearer. |
| ***recoverPDCP***Indicates that PDCP should perform recovery according to TS 38.323 [5]. Network doesn't include this field if the bearer is configured as DAPS bearer. |
| ***sdap-Config***The SDAP configuration determines how to map QoS flows to DRBs when NR or E-UTRA connects to the 5GC and presence/absence of UL/DL SDAP headers. |

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| ***RadioBearerConfig* field descriptions** |
| ***securityConfig***Indicates the security algorithm and key to use for the signalling and data radio bearers configured with the list in this IE *RadioBearerConfig*. When the field is not included after AS security has been activated, the UE shall continue to use the currently configured *keyToUse* and security algorithm for the radio bearers reconfigured with the lists in this IE *RadioBearerConfig*. The field is not included when configuring SRB1 before AS security is activated. |
| ***srb3-ToRelease***Release SRB3. SRB3 release can only be done over SRB1 and only at SCG release and reconfiguration with sync. |

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| ***SecurityConfig* field descriptions** |
| ***keyToUse***Indicates if the bearers configured with the list in this IE *RadioBearerConfig* are using the master key or the secondary key for deriving ciphering and/or integrity protection keys. For MR-DC, network should not configure SRB1 and SRB2 with secondary key and SRB3 with the master key. When the field is not included, the UE shall continue to use the currently configured *keyToUse* for the radio bearers reconfigured with the lists in this IE *RadioBearerConfig*. |
| ***securityAlgorithmConfig***Indicates the security algorithm for the signalling and data radio bearers configured with the list in this IE *RadioBearerConfig*. When the field is not included, the UE shall continue to use the currently configured security algorithm for the radio bearers reconfigured with the lists in this IE *RadioBearerConfig*. |

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| ***SRB-ToAddMod* field descriptions** |
| ***discardOnPDCP***Indicates that PDCP should discard stored SDU and PDU according to TS 38.323 [5]. |
| ***reestablishPDCP***Indicates that PDCP should be re-established. Network sets this to *true* whenever the security key used for this radio bearer changes. Key change could for example be due to reconfiguration with sync, for SRB2 when resuming an RRC connection, or at the first reconfiguration after RRC connection reestablishment in NR. For LTE SRBs using NR PDCP, it could be for handover, RRC connection reestablishment or resume. Network doesn't include this field if any DAPS bearer is configured. |
| ***srb-Identity***Value 1 is applicable for SRB1 only. Value 2 is applicable for SRB2 only. Value 3 is applicable for SRB3 only. |

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| **Conditional Presence** | **Explanation** |
| *RBTermChange* | The field is mandatory present in case of set up of signalling and data radio bearer and change of termination point for the radio bearer between MN and SN. It is optionally present otherwise, Need S. |
| *RBTermChange1* | The field is mandatory present in case of:- set up of signalling and data radio bearer,- change of termination point for the radio bearer between MN and SN,- handover from E-UTRA/EPC or E-UTRA/5GC to NR,- handover from NR or E-UTRA/EPC to E-UTRA/5GC if the UE supports NGEN-DC.It is optionally present otherwise, Need S. |
| *PDCP* | The field is mandatory present if the corresponding DRB is being setup or corresponding DRB is reconfigured with NR PDCP or corresponding SRB associated with two RLC entities is being setup or if the number of RLC bearers associated with the DRB or SRB is changed. The field is optionally present, Need S, if the corresponding SRB associated with one RLC entity is being setup or corresponding SRB is reconfigured with NR PDCP; otherwise the field is optionally present, need M. |
| *DRBSetup* | The field is mandatory present if the corresponding DRB is being setup; otherwise the field is optionally present, need M. |
| *HO-Conn* | The field is mandatory present- in case of inter-system handover from E-UTRA/EPC to E-UTRA/5GC or NR,- or when the *fullConfig* is included in the *RRCReconfiguration* message and NE-DC/NR-DC is not configured,- or in case of *RRCSetup*.Otherwise the field is optionally present, need N.Upon *RRCSetup*, only SRB1 can be present. |
| *HO-toNR* | The field is mandatory present- in case of inter-system handover from E-UTRA/EPC to E-UTRA/5GC or NR,- or when the *fullConfig* is included in the *RRCReconfiguration* message and NE-DC/NR-DC is not configured.In case of *RRCSetup*, the field is absent; otherwise the field is optionally present, need N. |
| *DAPS* | The field is optionally present, need N, in case masterCellGroup includes ReconfigurationWithSync, SCell(s) and SCG are not configured, multi-DCI/single-DCI based multi-TRP are not configured in any DL BWP, ethernetHeaderCompression is not configured for the DRB, and sidelink is not configured. Otherwise the field is absent. |

*End of Change*