**3GPP TSG-RAN WG2 Meeting #114-eR2-210xxxx**

**eMeeting, 19th – 27th May, 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.331** | **CR** | **2555** | **rev** | **2** | **Current version:** | **15.13.0** |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network | **X** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Clarification on RLC bearer handling in full configuration | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MediaTek Inc., Qualcomm Incorporated, Ericsson, Nokia, Nokia Shanghai Bell, Vivo, Huawei, HiSilicon, ZTE Corporation, Apple, Intel | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Core | | | | |  | ***Date:*** | | | 2021/05/19 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-15 |
|  | *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-12 (Release 12) Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Full configuration procedure in NR is slightly different from the one in LTE due to the concept of RLC bearers introduced in NR.   In LTE upon full configuration, PDCP and RLC configurations of SRB are kept at the beginning. The UE applies default PDCP/RLC configuration of a SRB later if the concerned SRB Id is still present in *srb-ToAddModList*. In this case, the RLC entity of the SRB is not released.  In NR, all RLC bearers (including SRB and DRB) are released upon full configuration. As a consequence, the RLC SN is reset to 0 if the corresponding RLC bearer is added back in the same RRC message.   There is some misunderstanding in the field that the procedure is same as in LTE. While full configuration is used in RRC Resume or first Reconfiguration after re-establishment, the RLC re-establishment of SRB1 is not a must. In this case, the UE and NW should have common understanding on whether RLC SN is reset to zero. (Note that in handover, RLC of SRB1 always re-established).  Therefore, we propose to clarify the RLC bearer is released upon full configuration (i.e. RLC SN is reset to zero). In addition, the CR also explain how the network could add the RLC bearer of SRB(s) back. The network can include the *srb-identity* within *srb-ToAddModList* (i.e. default configuration) and/or use *rlc-BearerToAddModList* of concerned SRB(s) explicitly. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Clarify that RLC bearers are released upon full configuration. 2. Move exception part (the PDCP/SDAP configurations) that are not released from the NOTE to procedure part. 3. Add a NOTE to say that, to establish the RLC bearer of SRB(s) after release due to *fullConfig*, the network can include the *srb-identity* within *srb-ToAddModList* (i.e. UE applies RLC default configuration) and/or provide *rlc-BearerToAddModList* of concerned SRB(s) explicitly. 4. Capture explicitly that RLC entity is stablished while the corresponding *srb-identity* within *srb-ToAddModList* is included.   **Impact analysis:**  Impacted 5G architecture options: Standalone, NE-DC, NR-DC  Impacted functionality:  Full configuration  Inter-operability:  if the UE implements the CR but the network does not or vice-versa, there is inter-operability issue. The RLC SN (and RLC bearer configuration) may be mismatched after full configuration.  **This CR is considered mandatory to support the impacted functionality.** | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Some companies may still follow the LTE behavior on full configuration. This may result in mismatch on RLC SN or RLC bearer configuration between UE and NW and eventually cause connection lost. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.5.11 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | R2-2104140 🡪 R2-2106329 | | | | | | | | |

1st change

5.3.5.11 Full configuration

The UE shall:

1> release/ clear all current dedicated radio configurations except for the following:

- the MCG C-RNTI;

- the AS security configurations associated with the master key;

- the SRB1/SRB2 configurations and DRB configurations as configured by *radioBearerConfig* or *radioBearerConfig2*.

NOTE 1: Radio configuration is not just the resource configuration but includes other configurations like *MeasConfig*. Radio configuration also includes the RLC bearer configurations as configured by *RLC-BearerConfig*. In case NR-DC or NE-DC is configured, this also includes the entire NR or E-UTRA SCG configuration which are released according to the MR-DC release procedure as specified in 5.3.5.10.

NOTE X: To establish the RLC bearer of SRB(s) after release due to *fullConfig*, the network can include the *srb-identity* within *srb-ToAddModList* (i.e. the UE applies RLC default configuration) and/or provide *rlc-BearerToAddModList* of concerned SRB(s) explicitly.

1> if the *spCellConfig* in the *masterCellGroup* includes the *reconfigurationWithSync* (i.e., SpCell change):

2> release/ clear all current common radio configurations;

2> use the default values specified in 9.2.3 for timers T310, T311 and constants N310, N311;

1> else (full configuration after re-establishment or during RRC resume):

2> use values for timers T301, T310, T311 and constants N310, N311, as included in *ue-TimersAndConstants* received in *SIB1*;

1> apply the default L1 parameter values as specified in corresponding physical layer specifications except for the following:

- parameters for which values are provided in *SIB1*;

1> apply the default MAC Cell Group configuration as specified in 9.2.2;

1> for each *srb-Identity* value included in the *srb-ToAddModList* (SRB reconfiguration):

2> establish an RLC entity for the corresponding SRB;

2> apply the default SRB configuration defined in 9.2.1 for the corresponding SRB;

NOTE 2: This is to get the SRBs (SRB1 and SRB2 for reconfiguration with sync and SRB2 for resume and reconfiguration after re-establishment) to a known state from which the reconfiguration message can do further configuration.

1> for each *pdu-Session* that is part of the current UE configuration:

2> release the SDAP entity (clause 5.1.2 in TS 37.324 [24]);

2> release each DRB associated to the *pdu-Session* as specified in 5.3.5.6.4;

NOTE 3: This will retain the *pdu-Session* but remove the DRBs including *drb-identity* of these bearers from the current UE configuration. Setup of the DRBs within the AS is described in clause 5.3.5.6.5 using the new configuration. The *pdu-Session* acts as the anchor for associating the released and re-setup DRB. In the AS the DRB re-setup is equivalent with a new DRB setup (including new PDCP and logical channel configurations).

1> for each *pdu-Session* that is part of the current UE configuration but not added with same *pdu-Session* in the *drb-ToAddModList*:

2> if the procedure was triggered due to reconfiguration with sync:

3> indicate the release of the user plane resources for the *pdu-Session* to upper layers after successful reconfiguration with sync;

2> else:

3> indicate the release of the user plane resources for the *pdu-Session* to upper layers immediately;