**3GPP TSG-RAN WG3 #115-e R3-222922**

**21 February – 3 March 2022**

**Online**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.470** | **CR** | **0076** | **rev** | **5** | **Current version:** | **16.5.0** |  |
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| *For* ***[HE](http://www.3gpp.org/3G_Specs/CRs.htm" \l "_blank)******[LP](http://www.3gpp.org/3G_Specs/CRs.htm" \l "_blank)*** *on using this form: comprehensive instructions can be found at  <http://www.3gpp.org/Change-Requests>.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **x** | Core Network |  |

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| ***Title:*** | CP-based Congestion Mitigation for IAB Network | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE, Ericsson, Nokia, Nokia Shanghai Bell, Samsung | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IAB\_enh-Core | | | | |  | ***Date:*** | | | 2022-3-4 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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 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:*** | | Enabling CP-based congestion detection, BAP header rewriting and inter-donor-DU re-routing in IAB Network. | | | | | | | | |
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| ***Summary of change:*** | | **- RAN3#112e**  Modifying the sentence “The gNB-DU status indication function allows the gNB-DU to indicate overload status to gNB-CU.” to “The gNB-DU status indication function allows the gNB-DU to indicate overload status to gNB-CU. In case of IAB, the IAB-donor-DU or IAB-DU can indicate the downlink congestion status to IAB-donor-CU. ”  **- RAN3#115e**  Merge the TPs agreed in RAN3#115e, including clarifications to BAP header rewriting, resource configuration and inter-donor-DU re-routing | | | | | | | | |
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| ***Consequences if not approved:*** | | CP-based congestion mitigation, BAP header rewriting and inter-donor-DU re-routing in IAB Network cannot not supported. | | | | | | | | |
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| ***Clauses affected:*** | | 5.2.1, 5.2.12 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 38.473 CR 0737 | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | | Rev#5:  - To merge TPs agreed in R3-222698, R3-222741 in RAN3#115e meeting  Rev#4:  - Re-base on TS38.470v16.5.0  Rev#3:  - Re-base on TS38.470v16.5.0  Rev#2:  - Re-base on TS38.470v16.5.0  Rev#1:   * Re-base on TS38.470v16.5.0 | | | | | | | | |

**--------------------------------------------------Start of the change---------------------------------------------------**

## 5.2 F1-C functions

### 5.2.1 F1 interface management function

The error indication function is used by the gNB-DU or gNB-CU to indicate to the gNB-CU or gNB-DU that an error has occurred.

The reset function is used to initialize the peer entity after node setup and after a failure event occurred. This procedure can be used by both the gNB-DU and the gNB-CU.

The F1 setup function allows to exchange application level data needed for the gNB-DU and gNB-CU to interoperate correctly on the F1 interface, and exchange the intended TDD DL-UL configuration originating from the gNB-DU or destined to the gNB-DU. The F1 setup is initiated by the gNB-DU.

The gNB-CU Configuration Update and gNB-DU Configuration Update functions allow to update application level configuration data needed between gNB-CU and gNB-DU to interoperate correctly over the F1 interface, and may activate or deactivate cells. For cross-link interference mitigation, the gNB-CU may coordinate the exchange of intended TDD DL-UL configuration by merging, forwarding and selective forwarding of intended TDD DL-UL configuration(s) between its gNB-DUs, or between its gNB-DUs and other gNBs, gNB-CUs. With the gNB-CU Configuration Update function, energy saving with cell activation/deactivation can be supported as defined in TS 38.300 [8].

The F1 setup and gNB-DU Configuration Update functions allow to inform the S-NSSAI(s), CAG ID(s) and NID(s) supported by the gNB-DU.

The F1 setup and gNB-CU Configuration Update functions allow to inform the NID(s) available at the gNB-CU.

The F1 resource coordination function is used to transfer information about frequency resource sharing between gNB-CU and gNB-DU. In case of split gNB architecture, the gNB-CU may consolidate the outgoing messages from multiple gNB-DUs and distribute the incoming messages to the involved gNB-DUs, to perform resource coordination.

The gNB-DU status indication function allows the gNB-DU to indicate overload status to gNB-CU. In case of IAB, the IAB-donor-DU or IAB-DU can indicate the downlink congestion status to the IAB-donor-CU.

The network access rate reduction function is used to indicate to the gNB-DU that the rate at which UEs are accessing the network need to be reduced.

The F1 removal function is used to remove the interface instance and all related resources between the gNB-DU and the gNB-CU in a controlled manner.

**-------------------------------------------Next Change------------------------------------------**

### 5.2.12 IAB support function

The BAP mapping configuration function allows the IAB-donor-CU to provide BAP mapping which includes the backhaul routing configuration and/or BH RLC channel mapping information for IAB-donor-DU or IAB-DU. This function also enables the IAB-donor-CU to provide BAP header rewriting configuration to the IAB-DU.

The gNB-DU resource configuration function is used by the IAB-donor-CU to provide cell resource configuration for an IAB-donor-DU or an IAB-DU, and/or NA resource configuration of a parent node IAB-DU or IAB-donor-DU serving the collocated IAB-MT for an IAB-donor-DU or an IAB-DU, and/or information about the child node’s cell resource configuration and other periodic configurations to a parent IAB-node or an IAB-donor-DU. This function also allows the IAB-donor-CU to provide the semi-static cell resource configuration of a neighbour node or a peer parent-node of a child node, whereas this neighbor node or a peer parent can be an IAB-donor-DU or an IAB-DU.

The IAB TNL address configuration function enable the IAB-donor-CU to request IP address(es) to be used for IAB-node(s) from an IAB-donor-DU. This function is also used by the IAB-donor-CU to provide an IAB-donor-DU with the IP address information of traffic to be transferred to a peer IAB-donor-DU via an inter-donor-DU tunnel.

The IAB UP configuration update function allows the update of BH information or the UP TNL information between the IAB-donor-CU and an IAB-DU.

**--------------------------------------------------End of the change-----------------------------------------------------**