**3GPP TSG- Meeting #121bis-e**

**Online, 17th – 26th April 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  |  | **CR** | **1609** | **rev** | **1** | **Current version:** |  |  |
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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 |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | Correction to restricted resources for eIAB |
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| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** |  |
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| ***Work item code:*** | NR\_IAB\_enh-Core |  | ***Date:*** | 2023-04-07 |
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| ***Category:*** |  |  | ***Release:*** |  |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | According to an agreement taken by RAN1, the parent node may indicate to the IAB via MAC CE tge restriction on the use of spatial and timer resources.------------------------------------------------------------------------Agreement #107The restricted beam indication from the parent node to the IAB node may be indicated to be associated with some combination (one or multiple) of the following IAB-node’s configurations: * {MT CC, DU cell} pair and optionally may be indicated to be associated with only {DU cell} if independent of MT CC(s)
* Multiplexing mode info (i.e. multiplexing info in 38.473) and optionally may be indicated to be applicable to non-overlapping frequency resources
* Slot index

Association with IAB-MT’s DL Rx beam via TCI state ID and RS ID (SSB ID and/or CSI-RS ID) or UL TX beam via SRI Agreement (MT🡪parent, desired parent DL power)The information to assist DL power allocation of the parent-node is indicated by the IAB-MT to the parent node DU in terms of desired power adjustment.Agreement (MT🡪parent, desired parent DL power)The desired DL TX power adjustment, indicated by the IAB-MT to its parent-node to assist with the parent-node’s DL TX power allocation, is provided at least for specific time resources. The desired DL TX power adjustment can further be associated with spatial configuration. (e.g., MT’s DL RX beams).Agreement (Parent🡪MT, provided DL power adjust) #106Support an IAB-node indicating adjustment to its DL TX power to a child node (e.g., in response to receiving the DL TX power assistance information from the child node) at least for specific time resources.The DL TX power adjustment indication can further be associated with spatial configuration. (e.g., MT’s DL RX beams).Agreement (Parent🡪MT, provided DL power adjust) #106-bThe DL TX power adjustment, provided by the parent-node to the IAB-MT, is indicated via MAC-CE. The indication further includes the associated configurations and/or resources for which the indicated power adjustment is applicable.------------------------------------------------------------------------However, according to the MAC CEs in section 5.18.26 and 5.18.27 of TS 38.321, it is stated that the restrictions refer to spatial and frequencies resources, which is not correct. |
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| ***Summary of change:*** | Section 5.18.26, 5.18.27- Clarified that the recommendations and restrictions refer to “time” resources and not “frequency” resourses.**Impact Analysis**Impacted 5G architecture options: IAB Impacted functionality: Beam and power restrictionsInter-operability:1. If the network is implemented according to the CR and the UE is not, beams and power can be erroneously restricted on the frequency domain instead of the time domain.2. If the UE is implemented according to the CR and the network is not, beams and power can be erroneously restricted on the frequency domain instead of the time domain. |
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| ***Consequences if not approved:*** | If the CR is not approve, beams and power can be erroneously restricted on the frequency domain instead of the time domain. |
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| ***Clauses affected:*** | 5.18.26, 5.18.27 |
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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 OF CHANGES*

### 5.18.26 Restricted and recommended beam indication for IAB

Child IAB-DU Restricted Beam Indication MAC CE is used by an IAB-node to indicate to its child node spatial and frequency/time resources where simultaneous transmission/reception from the IAB-MT and transmission from the IAB-DU cells is restricted. IAB-MT Recommended Beam Indication MAC CE is used by an IAB-node to indicate to its parent node recommendations for such a restriction. Time resources where these restrictions/recommendations apply are indicated via RRC.

Upon reception of a Child IAB-DU Restricted Beam Indication MAC CE the IAB-node shall:

- apply the configuration signalled in the MAC CE to the time slots indicated in *IAB-ResourceConfig* (as specified in TS 38.331 [5]) which contains *iab-ResourceConfigID* parameter which matches the Resource Configuration ID field of the MAC CE.

The MAC entity may:

1> if an IAB-MT Recommended Beam Indication query has not been triggered:

2> trigger an IAB-MT Recommended Beam Indication query for this Serving Cell.

If the MAC entity has UL resources allocated for new transmission the MAC entity shall:

1> for each IAB-MT Recommended Beam Indication query that has been triggered and not cancelled:

2> if the allocated UL resources can accommodate a IAB-MT Recommended Beam Indication MAC CE plus its subheader as a result of LCP as defined in clause 5.4.3.1:

3> instruct the Multiplexing and Assembly procedure to generate the IAB-MT Recommended Beam Indication MAC CE;

3> cancel this IAB-MT Recommended Beam Indication query.

### 5.18.27 DL TX power adjustment for IAB

DL TX Power Adjustment MAC CE is used by an IAB-node to indicate to its child node spatial and frequency/time resources where the DL TX power adjustment contained in the MAC CE applies. Desired DL TX Power Adjustment MAC CE is used by an IAB-node to indicate to its parent node recommendations for such a restriction. Time resources where these restrictions/recommendations apply are indicated via RRC.

Upon reception of a DL TX Power Adjustment MAC CE the IAB-node shall:

- apply the configuration signalled in the MAC CE to the time slots indicated in *IAB-ResourceConfig* (as specified in TS 38.331 [5]) which contains *iab-ResourceConfigID* parameter which matches the Resource Configuration ID field of the MAC CE.

The MAC entity may:

1> if a Desired DL TX Power Adjustment query has not been triggered:

2> trigger a Desired DL TX Power Adjustment query for this Serving Cell.

If the MAC entity has UL resources allocated for new transmission the MAC entity shall:

1> for each Desired DL TX Power Adjustment query that has been triggered and not cancelled:

2> if the allocated UL resources can accommodate a Desired DL TX Power Adjustment MAC CE plus its subheader as a result of LCP as defined in clause 5.4.3.1:

3> instruct the Multiplexing and Assembly procedure to generate the Desired DL TX Power Adjustment MAC CE;

3> cancel this Desired DL TX Power Adjustment query.

*END OF CHANGES*