**3GPP TSG-RAN WG2 Meeting #119 Electronic R2-22xxxx**

**Online Meeting, 17th – 29th Aug, 2022**

Agenda Item: 6.4.3

Source: Huawei, HiSilicon

**Title:** Report of [AT119-e][019][IAB17] BAP

Document for: Discussion and Decision

# Introduction

This paper aims at capturing the summary of offline discussion.

**[AT119-e][019][IAB17] BAP (Huawei)**

 Scope: Treat [R2-2207701](file:///C%3A%5C%5CUsers%5C%5Cmtk65284%5C%5CDocuments%5C%5C3GPP%5C%5Ctsg_ran%5C%5CWG2_RL2%5C%5CTSGR2_119-e%5C%5CDocs%5C%5CR2-2207701.zip%22%20%5Co%20%22C%3AUsersmtk65284Documents3GPPtsg_ranWG2_RL2TSGR2_119-eDocsR2-2207701.zip), [R2-2207189](file:///C%3A%5C%5CUsers%5C%5Cmtk65284%5C%5CDocuments%5C%5C3GPP%5C%5Ctsg_ran%5C%5CWG2_RL2%5C%5CTSGR2_119-e%5C%5CDocs%5C%5CR2-2207189.zip%22%20%5Co%20%22C%3AUsersmtk65284Documents3GPPtsg_ranWG2_RL2TSGR2_119-eDocsR2-2207189.zip), [R2-2207402](file:///C%3A%5C%5CUsers%5C%5Cmtk65284%5C%5CDocuments%5C%5C3GPP%5C%5Ctsg_ran%5C%5CWG2_RL2%5C%5CTSGR2_119-e%5C%5CDocs%5C%5CR2-2207402.zip%22%20%5Co%20%22C%3AUsersmtk65284Documents3GPPtsg_ranWG2_RL2TSGR2_119-eDocsR2-2207402.zip)

 Determine agreeable parts, For agreeable parts, agree CRs.

 Intended outcome: Report, Agreed CRs

 Deadline: Schedule 1

# Discussion

**2.1 Miscellaneous/Editorial**

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| **Tdoc** | **Changes** | **Rapporteur’s suggestions** |
| R2-2207781 | Change 3): In 5.2.1.3, change the condition as “if this egress link does not belong to non-F1-terminating donor topology”. | **See the discussion in below section 2.2.**  |
| Other changes | Minor editorial/straight corrections.**To be merged to Rapp CR and further reviewed in later phase.** |
| R2-2207189 | 1st change | **To be merged to Rapp CR and further reviewed in later phase.** |
| 2nd change | **See the discussion in below section 2.3.** |
| R2-2207402 | 1st change: on SCG deactivation | The proposal is revision of R2-2204913, which was treated at RAN2#118-e meeting. (no clear agreement to exclude SCG deactivation by eIAB, but common view is not pursuing the CR)[R2-2206530](file:///C%3A%5C%5CUsers%5C%5Cmtk65284%5C%5CDocuments%5C%5C3GPP%5C%5Ctsg_ran%5C%5CWG2_RL2%5C%5CTSGR2_118-e%5C%5CDocs%5C%5CR2-2206530.zip%22%20%5Co%20%22C%3AUsersmtk65284Documents3GPPtsg_ranWG2_RL2TSGR2_118-eDocsR2-2206530.zip) Report of [AT118-e][066][eIAB] BAP       Huawei, HiSilicon**P1, P2, P3 P4 are agreed**Summary: There is majority to not confirm the support of SCG deactivation by R17 IAB. Rapporteur propose the conclusion as “No consensus”.**Not pursued.** |
| 2nd change on F1AP IE | **To be merged to Rapp CR and further reviewed in later phase.** |

**Q1: Do you agree with the rapporteur’s suggestions, and provide detailed comments otherwise.** (You can skip the changes if you agree with rapporteur’s suggestion)

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| **Companies** | **Tdoc/changes** | **Comments** |
| LGE | R2-2207402 | This is related to Q2 in section 2.3. We have another proposal. Please see our answer for Q2 below.  |
| Fujitsu | R2-2207402 | In email discussion of last meeting, majority companies do not confirm the support of SCG deactivation by R17 IAB. Yet few companies give comments from technical aspect.We are fine if majority companies still prefer not to discuss this feature. |
| Nokia | R2-2207402 | We share Fujitsu understanding: SCG deactivation was discussed and the proposed change is against the majority view/conclusion |
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**2.2 Inter-donor-DU re-routing for non-boundary node in R2-2207781**

Following is proposed in R2-2207781

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| - else if, for the transmitting part of IAB-MT, at least one egress link is available, and if *Re-routing Disable Indicator* IE is not configured by F1AP:- if this egress link does not belong~~s~~ to non-F1-terminating donor topology, and there is an entry in the BH Routing Configuration not configured with *Non-F1-terminating IAB-donor Topology Indicator* IE whose Next Hop BAP Address corresponds to this egress link, or- if this egress link belongs to non-F1-terminating donor topology, and there is an entry in the BH Routing Configuration configured with *Non-F1-terminating IAB-donor Topology Indicator* IE whose Next Hop BAP Address corresponds to this egress link:- select the egress link;- rewrite the BAP header of this BAP Data PDU, where the DESTINATION field is set to the leftmost 10 bits of BAP Routing ID of the entry in the BH Routing Configuration (i.e. BAP address), and the PATH field is set to the rightmost 10 bits of BAP Routing ID of the entry (i.e. BAP path identity). |

Since the “F1-terminating donor topology” definition only applies to boundary node, i.e. “refers to the IAB-donor that terminates F1 for the boundary IAB-node, as defined in TS 38.401”. The conditions for inter-donor-DU re-routing with header rewriting cannot cover the descendant node (non-boundary node) case well. Namely that, technically, the condition “if this egress link belongs to F1-terminating donor topology” is not met for the descendant node.

**Q2: Do you think the proposed 3rd change in R2-2207781 is needed?**

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| **Companies** | **Yes/No** | **Comments** |
| Samsung | See comment | « if this egress link does not belong~~s~~ to non-F1-terminating donor topology » is completely equivalent to original wording, « if this egress link belongs to F1-terminating donor topology », **unless** we assume that non-F1-terminating donor topology also applies to descendent nodes, and that F1-terminating donor topology only applies to boundary node. Which we believe is the understanding/intention behind this proposed change.We would first like to confirm that there really is an issue here, and that it is not simpler to extend F1-terminating donor topology to descendent nodes as well, rather than introduce this change. |
| LGE | See comments | We understand the issue, but are not sure this change is the best way to correct because the current change, i.e., “does not belong~~s~~ to non-F1-terminating donor topology”, seems to lose information about exact condition for re-routing with header rewriting.Another way is to add the exact missing case like below. If there is better wording to express this case, we can also accept that wording.“if this egress link belongs to F1-terminating donor topology or the topology of the IAB-donor that provides the F1 configuration of this node, and~” |
| QC | See comment | The IAB topology is defined in 38300 as:**IAB topology:** The unison of all IAB-nodes and IAB-donor-DUs that are interconnected via BH links and terminate F1 and/or RRC at the same IAB-donor-CU.For inter-donor redundancy, the DNs would obviously belong to the F1-terminating topology. In this case, the original BAP text is fine.For partial migration and RLF recovery, the IAB topology definition is a little murky since it does not clearly specify if the DN’s belong to the F1- or the non-F1-terminating IAB-donor’s topology.To be consistent with inter-donor redundancy, the DN should always belong to the F1 terminating topology. This implies that we should change the definition of IAB topology.We propose: **Proposal: Change definition of IAB topology to: The unison of all IAB-nodes and IAB-donor-DUs that ~~are interconnected via BH links and~~ terminate F1 and/or RRC at the same IAB-donor-CU**. |
| Kyocera | Yes, but… | We agree the 3rd change in principle, but we’re wondering if it’s better to state the “boundary IAB-node” explicitly in terms of readability, e.g., “*else if, for the transmitting part of IAB-MT* **at boundary IAB-node**”.  |
| Fujitsu | No | The change does not make any difference. It is true that the F1-terminating IAB-donor node is only defined for boundary node in TS 38.401, that’s because that the boundary node is the only IAB node that belongs to two topologies. For the descendent nodes, it has only F1-terminating donor thus only belongs to the F1-terminating IAB topology. There seems to be no confusion in current text. |
| Intel | See comments | We agree with the intent and are OK with the suggested change. However, we are also open to discuss further on other options as suggested by other companies. |
| Nokia | See comment | Neither one of the current definitions in 38.401, for F1-terminating donor and Non-F1-terminating donor, apply to a non-boundary node. This, it may still remain debatable whether the proposed text “does not belongs to non-F1-terminating donor topology” is more accurate than the current text “belongs to F1-terminating donor topology” for a non-boundary node.Maybe a more precise as well as intuitive fix – although with RAN3 impact – would be to update the definition like “**F1-terminating IAB-donor of ~~boundary~~ IAB-node**: Refers to the IAB-donor that terminates F1 for the ~~boundary~~ IAB-node.” |
| ZTE | See comments | Agree with the intention. However, it is suggested to add one more “if” condition to address the non-boundary node’s inter-donor DU re-routing scenario.  |

**2.3 Type2 RLF indication in R2-2207189**

Following is proposed in R2-2207189

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| When BH RLF(s) occur at the IAB-MT on all the link(s) providing F1 interface over BAP, or when BH RLF occurs at the IAB-MT on MCG and fast MCG link recovery is not configured, for each egress link associated with the IAB-DU, the transmitting part of the collocated BAP entity at the IAB-DU may:- construct a BAP Control PDU for BH RLF detection indication in accordance with clause 6.2.3.4; |

**Rapporteur’s view**: The issue (to clarify the details of type2 indication trigger) was discussed before by RAN2 and the conclusion was no BAP details to capture. See RAN2#117 agreement (R2-2203934):

“**As in R16, the trigger conditions (not the propagation) for type 2/3 will be captured in BAP spec. rather than in RRC spec., with just some general descriptions.**”

**Q2: Do you confirm the rapporteur’s view to not re-discuss this issue, i.e. the 1st change in** **R2-2207189 is not pursued?**

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| **Companies** | **Yes/No** | **Comments** |
| Samsung | Yes | Also ok to go with majority, if there is a strong feeling both conditions need to be captured. We have some understanding for suggesting to capture it, since BAP spec is the only place for this, but also fully understand rapporteur’s intention not to reopen discussions. |
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| LGE | See comment | We understand the intention and motivation of the CR. Currently triggering condition of BH RLF indication is not accurately specified; RRC does not specify anything about BH RLF indication, and BAP only states partial conditions, which seems to lead to this CR (and also the CR in R2-2207402). So, it would be good to make our specs more clear and accurate on this aspect by having necessary changes. To elaborate further, note that RAN2#116 made the following agreements. * 🡺 Type 2 indication by dual-connected node is triggered when the node initiates RRC re-establishment resulting from BH RLF on both CGs or BH RLF on MCG with no fast MCG recovery.

The agreement specifies initiation of re-establishment as a triggering condition of type-2 indication but it states two causes of re-establishment as well. It is not crystal clear how to interpret the two explicit causes* A) whether the agreement should be interpreted restrictively (i.e., type-2 is triggered by re-establishment only resulting from BH RLF on both CG or MCG failure with no fast MCG recovery (no T316 configured) or
* B) whether initiation of re-establishment should trigger type-2 regardless of the cause of the re-establishment (i.e., type-2 can be also triggered by re-establishment resulting from what is specified in

We are very inclined to B, because i) the RAN2#116 agreement is already in line with this interpretation, and ii) we see no technical reason to exclude other re-establishment causes than the two causes as triggering conditions of type-2 indication. Based on the discussion, we propose to add “initiation of RRC re-establishment” as a generic triggering condition of type-2 indication. |
| Qualcomm | Change should be captured in BAP | There seem to be conflicting issues:1. Is RRC Reestablishment resulting from BH RLF on MCG with no fast MCG recovery a reason to send type-2 indication?2. BAP should only capture general descriptions, but the details are not captured in RRC either. So where to capture such details?On 1: Yes, our agreement states that RRC Reestablishment resulting from BH RLF on MCG with no fast MCG recovery is a reason to send type-2 indication. This means it needs to be captured somewhere.On 2: We believe they should be captured in BAP. The term “general description” is certainly “general” in itself and allows freedom of interpretation. The change can therefore be captured in BPA. For that reason, we support the change proposed by R2-2207189. |
| Kyocera | Yes | We agree with the rapporteur’s view. Additionally, we think the current Stage-2 text covered the concerned condition, i.e., “*The collocated IAB-MT is dual-connected, detects BH RLF on a BH link, and* ***cannot perform UL re-routing for any traffic.***” |
| Fujitsu | See comment | We acknowledge the issue. Based on the above comments, we prefer to choose from one of the following options to capture the change of the trigger of BH RLF detection indication:Opt 1: add “initiation of RRC re-establishment” as a generic triggering condition of type-2 indication. Opt 2: copy from stage-2 text that “*The collocated IAB-MT is dual-connected, detects BH RLF on a BH link, and* ***cannot perform UL re-routing for any traffic.”***We may choose from them and settle it once and for all, hopefully. |
| Intel | Should be captured (see comment) | We agree it should be captured in BAP. The current suggested text looks OK to us but we are also open to discuss the wording. |
| Nokia |  | We are fine to capture in BAP as it reflects the made agreement |
| ZTE | See comments | It would be better to have some clarification. And LG’s proposal looks fine for us. |

# Conclusion and proposals

Based on the above summary, following proposals are given

**TBD**

# Reference

1. R2-2207781 Miscellaneous corrections in TS 38.340 for eIAB Huawei, HiSilicon
2. R2-2207189 Miscellaneous corrections on IAB in TS38.340 ZTE, Sanechips
3. R2-2207402 Support SCG deactivation for IAB nodes and other miscellaneous corrections Fujitsu