**3GPP TSG RAN WG1 #109-e R1-2204853**

**e-Meeting, May 9th – 20th, 2022**

**Agenda Item: 8.16.10**

**Source: Moderator (AT&T)**

**Title: Summary of UE features for IAB enhancements**

**Document for:** **Discussion/Decision**

# Introduction

This document presents the summary of email discussion/approval [109-e-R17-UE-features-eIAB-01] during RAN1 #109-e. According to the Chairman’s Notes:

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| [109-e-R17-UE-features-eIAB-01] Email discussion on UE features for IAB enhancements – Ralf (AT&T)* 1st check point for LS to RAN2: May 13
* Final check point for any remaining issues: May 20
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The following was discussed and/or agreed during RAN1 #109-e within the scope of [109-e-R17-UE-features-eIAB-01]. All proposals are based on the latest RAN1 UE features list for Rel-17 NR in [1].

# Summary of Contributions Submitted to RAN1 #109-e

The following is the moderator’s summary of contributions submitted to RAN1 #109-e in this agenda item.

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| 31. NR\_IAB\_enh | 31-4 | Case 6 timing alignment | Support Case 6 timing alignment indication reception |  | Yes | N/A | Switching across different timing cases (i.e., Case 1 at IAB-node, Case 6 at IAB-node, and/or Case 7 at theParent) is not supported. When to perform Case 6 timing at the IAB-node cannot be controlled by the parent node. | per IAB node | No | No | support mixture of FDD/TDD and/or FR1/FR2  | IAB-MT impact | Optional with capability signalling. |

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| Company | Summary |
| ZTE/Sanechips [2] | According to the following agreement from RAN1#107e meeting, a child IAB-MT can inform a parent node via MAC-CE whether Case 6 timing is required for simultaneous operation. From our point of view, the indication of Case 6 timing required should be optional for Case 6 timing, and we prefer to add a component to FG31-4 to reflect this optional UE feature.

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| **Agreement**A child IAB-MT can inform a parent node via MAC-CE whether Case 6 timing is required for simultaneous operation. |

So we propose to add new component to FG 31-4 to reflect the above agreement***Proposal 1: Update 31-4 to reflect the agreement of RAN1#107-e:***

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| 31-4 | Case 6 timing alignment | 1) Support Case 6 timing alignment indication reception2) Support Case 6 Timing required indication transmission |  | Yes | N/A | Switching across different timing cases (i.e., Case 1 at IAB-node, Case 6 at IAB-node, and/or Case 7 at theParent) is not supported. When to perform Case 6 timing at the IAB-node cannot be controlled by the parent node.Whether Case 6 timing is required at the IAB node is not known at its parent node. | per IAB node | No | No | support mixture of FDD/TDD and/or FR1/FR2  | IAB-MT impact | Optional with capability signalling. |

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| Ericsson [3] | In RAN1#107-e, the following agreements on Case 6 timing alignment was achieved:

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| **Agreement:**A child IAB-MT can inform a parent node via MAC-CE whether Case 6 timing is required for simultaneous operation. |

To reflect the above RAN1 agreement, in the RAN1#108-e meeting, there was a proposal to introduce a second FG sub-component, namely “Support signaling to the parent-node that Case 6 Timing Mode is required for simultaneous transmission”. The proposal was supported by 4 companies and there was no concern raised by any other company. However, this consensus was neither captured in the agreements by the First Check Point, nor by the Final Check Point. Based on the above observation, the components in FG 31-4 Case 6 timing alignment should include a component 2) that is marked in red below: 1. Support Case 6 timing alignment indication reception
2. Support signalling to the parent-node that Case 6 Timing Mode is required for simultaneous transmission

In RAN1#108-e, a new FG 31-10 was agreed on to be used by the IAB-node to report support of updated T\_delta range reception. However, since the previous agreed list has only 8 FGs, we propose to change the numbering from FG 31-10 to FG 31-9. Based on the above discussions on the feature groups FG31-4 to FG31-10, we propose the following update to the UE features for Rel-17 eIAB:1. RAN1 to agree on the updated UE features for Rel-17 eIAB as presented in the Appendix.

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| 31. NR\_IAB\_enh | 31-4 | Case 6 timing alignment | 1) Support Case 6 timing alignment indication reception 2) Support signalling to the parent-node that Case 6 Timing Mode is required for simultaneous transmission |  | Yes | N/A | Switching across different timing cases (i.e., Case 1 at IAB-node, Case 6 at IAB-node, and/or Case 7 at theParent) is not supported. When to perform Case 6 timing at the IAB-node cannot be controlled by the parent node. | per IAB node | No | No | support mixture of FDD/TDD and/or FR1/FR2  | IAB-MT impact | Optional with capability signalling. |

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# Discussion/Approval Items during RAN1 #109-e — First Checkpoint

After review of contributions submitted to RAN1 #109-e in this agenda item, the following topics were identified by the moderator for discussion/approval during RAN1 #109-e.

**General comments**

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| Company | Comments/Questions/Suggestions |
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# Issue 1: FG 31-4

After review of contributions submitted to RAN1 #109-e in this agenda item, the following is proposed by the moderator. Companies submitted the following views on the moderator’s proposals.

**Proposal: Adopt the following changes highlighted in chromatic fonts, while keeping the yellow highlighting, if any, as shown**

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| 31. NR\_IAB\_enh | 31-4 | Case 6 timing alignment | 1) Support Case 6 timing alignment indication reception2) Support signalling to the parent-node that Case 6 Timing Mode is required for simultaneous transmission |  | Yes | N/A | Switching across different timing cases (i.e., Case 1 at IAB-node, Case 6 at IAB-node, and/or Case 7 at theParent) is not supported. When to perform Case 6 timing at the IAB-node cannot be controlled by the parent node.Whether Case 6 timing is required at the IAB node is not known at its parent node. | per IAB node | No | No | support mixture of FDD/TDD and/or FR1/FR2  | IAB-MT impact | Optional with capability signalling. |

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| Company | Comments/Questions/Suggestions |
| Ericsson | We agree with the slight modification “Whether Case 6 timing is required for simultaneous transmission at the IAB node is not known at its parent node.” |
| Intel | Agree with Ericsson’s slight modification. |

# Discussion/Approval Items during RAN1 #109-e — Second Checkpoint

Based on the comments/questions/suggestions received by the first checkpoint, the following are the revised proposals and/or proposed agreements by the moderator. Companies submitted the following views on the moderator’s proposals.

***[Please submit all comments/questions/suggestions here, late comments/questions/suggestions submitted in Section 3 will not be considered]***

**General comments**

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| Company | Comments/Questions/Suggestions |
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# Issue 1: FG

**Proposal: Adopt the following changes highlighted in chromatic fonts, while keeping the yellow highlighting, if any, as shown**

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| Company | Comments/Questions/Suggestions |
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# Discussion/Approval Items during RAN1 #109-e — Third Checkpoint

Based on the comments/questions/suggestions received by the second checkpoint, the following are the revised proposals and/or proposed agreements by the moderator. Companies submitted the following views on the moderator’s proposals.

***[Please submit all comments/questions/suggestions here, late comments/questions/suggestions submitted in Section 4 will not be considered]***

**General comments**

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| Company | Comments/Questions/Suggestions |
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# Issue 1: FG

**Proposal: Adopt the following changes highlighted in chromatic fonts, while keeping the yellow highlighting, if any, as shown**

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| Company | Comments/Questions/Suggestions |
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# Summary of Final Proposals for Agreements

This Section summarizes the final proposals for agreement in RAN1 #109-e by email. There are no tables for comments.

***[All comments must be directly made on the RAN1 email reflector]***

Companies can continue to update their comments in the previous Sections, however, these are no longer monitored by the moderator. Any such comments will be for archival purposes only and will not influence the outcome of this email discussion. Any objection to any of the proposals in this Section must be voiced directly on the RAN1 email reflector.

## Final Proposals for Agreement by the First Check Point

**Possible Agreement: Adopt the following changes highlighted in chromatic fonts, while keeping the yellow highlighting, if any, as shown**

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## Final Proposals for Agreement by the Second Check Point

**Possible Agreement: Adopt the following changes highlighted in chromatic fonts, while keeping the yellow highlighting, if any, as shown**

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# Conclusion

In addition to the agreements in Section 6, that were reached by email during RAN1 #109-e, the following was agreed by GTW during RAN1 #109-e:

# References

1. R1-2202929, Updated RAN1 UE features list for Rel-17 NR after RAN1 #108-e including remaining RAN1 issues, Moderators (AT&T, NTT DOCOMO, INC.)
2. R1-2203363, Discussion on NR Rel-17 IAB MT features, ZTE/Sanechips
3. R1-2204641, UE features for enhanced IAB, Ericsson