**3GPP TSG RAN Meeting #90e RP-20xxxx**

**Electronic Meeting, December 7- 11, 2020**

**Agenda item:** 9.8.10

**Source:** Qualcomm Incorporated (Moderator)

**Type:** Report

**Title:** Moderator's summary for email discussion [90E][29][IAB\_DC]

**Document for:** Approval

**Release:** Rel-17

# Introduction

The discussion handles:

|  |
| --- |
| Email thread on finding a way forward on DC scenarios in IAB.Goal: Generate an agreeable way forward.Input contributions covered:  2533, 2626, 2672.Moderator: Georg Hampel. |

The contributions RP-202533, RP-202626 and RP-202672 discuss the support for intra-carrier DC in Rel-17 IAB. All three contributions propose that TSG RAN preclude support for intra-carrier DC for Rel-17 IAB since not enough time would be available within present TU budgeting to handle the technical issues. One contribution claims that intra-carrier DC would not be supported by the Rel-17 IAB WID.

RAN#89e already had a discussion on this topic (RP-202083). In the discussion, 8 out of 15 companies were in favor for intra-frequency DC, 5 companies were opposed while 1 company needed more information. No agreement was reached. There was further no agreement if intra-carrier DC for IAB was compliant with the WID or not.

In this follow-up discussion in RAN#90e, the moderator would like to make further progress. The following is proposed:

**On compliance of intra-carrier DC with Rel-17 WID:** The RAN#89 discussion already indicated that the Rel-17 IAB WID was not sufficiently clear on the support of intra-carrier DC for IAB. For that reason, we will not spend further time on discussing the wording of the Rel-17 WID.

**On the size of the specification effort for intra-carrier DC for IAB:** In the prior discussion, some companies claimed that only little work was needed while others believed it was a major effort. The discussion did not try to scope the effort. We will therefore use the RAN#90 follow-up discussion to identify the main issues that need to be addressed for intra-carrier DC for IAB by each RAN WG. This exercise will provide a better understanding on what needs to be done, and it might make it easier to converge on this topic for Rel-17.

To keep focus, the following assumptions are made:

* Inter-carrier DC is supported in Rel-17 IAB.
* Intra-carrier DC is not supported in Rel-16 IAB.
* The discussion only focuses on intra-carrier DC for IAB, not for UEs.

The contributions to RAN#90e raised the following issues related to intra-carrier DC for IAB:

**RP-202533** claims that there is no verification on the feasibility of intra-carrier DC for IAB. The contribution does not discuss any issues that would need to be handled.

**RP-202626** made the following claims:

* Dynamic scheduler coordination between parent IAB-nodes would be necessary. No details were giving on what this would entail and which WG would be involved.
* For FR2, DC synchronization requirements would imply severe, if not impossible, restrictions in the IAB-deployment.No details were given on what such FR2 DC synchronization requirements would have to entail and why this would be severe or impossible.
* Implementation of intra-carrier DC would require extensive work that was not accounted for in the present time budgeting. No details were given on what this work would include.

**RP-202672** claims that the following issues would need to be addressed by RAN1:

* Revisiting IAB-MT assumptions on DL synchronization and UL timings,
* Parent nodes sending conflicting D/U/F indications in DCI 2\_0 for same IAB-MT resource,
* Parent nodes sending conflicting soft resource availability in DCI 2\_5 for same IAB-DU resource on IAB-node’s child link,
* Parent nodes indicating different number of guard-symbols in MAC-CE.

The contributions further claimed that the following issues would have to be addressed by RAN3:

* Resource coordination between gNBs for topology redundancy scenarios, where MCG and SCG links are controlled by different (donor or non-donor) gNBs.

The contribution further claims that RAN4 would need to investigate the potential impact of intra-carrier DC. No details were giving on what this would involve.

# Discussion

## Initial discussion: Issues to be handled for intra-carrier DC for IAB

The following aim to identify the main issues to be addressed by the individual RAN WGs. For each issue, we need to understand:

1. The underlying problem to be solved,
2. The main aspects to be addressed by each WG to solve the problem,
3. The adverse effects an implementation-only solution might have, e.g., on performance, inter-vendor interoperability, etc.

The questions below are based on the issues raised in contributions to RAN#90e. Companies are invited to discuss additional issues as well.

**Q1: In your view, what needs to be done for inter-parent-node scheduler coordination to support intra-carrier DC for IAB? Please explain the problem to be solved, aspects to be addressed by each WG, and impact if done via implementation only.**

|  |  |
| --- | --- |
| **Company** | **Comment** |
|  |  |
|  |  |
|  |  |
|  |  |

**Q2: In your view, what needs to be done for the coordination of DCI 2\_0 signaling for D/U/F indication among parent nodes to support intra-carrier DC for IAB? Please explain the problem to be solved, aspects to be addressed by each WG, and impact if done via implementation only.**

|  |  |
| --- | --- |
| **Company** | **Comment** |
|  |  |
|  |  |
|  |  |
|  |  |

**Q3: In your view, what needs to be done for the coordination of DCI 2\_5 signaling for soft-resource-availability indication among parent nodes to support intra-carrier DC for IAB? Please explain the problem to be solved, aspects to be addressed by each WG, and impact if done via implementation only.**

|  |  |
| --- | --- |
| **Company** | **Comment** |
|  |  |
|  |  |
|  |  |
|  |  |

**Q4: In your view, what needs to be done for parent-to-child timing synchronization to support intra-carrier DC for IAB? Please explain the problem to be solved, aspects to be addressed by each WG, and impact if done via implementation only.**

|  |  |
| --- | --- |
| **Company** | **Comment** |
|  |  |
|  |  |
|  |  |
|  |  |

**Q5: In your view, what other issues need to be addressed to support intra-carrier DC for IAB? Please explain the problem to be solved, aspects to be addressed by each WG, and impact if done via implementation only.**

|  |  |
| --- | --- |
| **Company** | **Comment** |
|  |  |
|  |  |
|  |  |
|  |  |

## Intermediate discussion: Aspects to be handled for intra-carrier DC for IAB

…

## Final discussion: Aspects to be handled for intra-carrier DC for IAB

…

# Conclusion

…

# References

|  |  |  |
| --- | --- | --- |
| [**RP-202533**](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_90e/Docs/RP-202533.zip) | On the support of intra-carrier DC in Rel-17 IAB | Samsung |
| [**RP-202626**](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_90e/Docs/RP-202626.zip) | Support of DC scenarios in Rel-17 enhanced IAB | Ericsson |
| [**RP-202672**](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_90e/Docs/RP-202672.zip) | Discussion on NR DC operation for IAB | ZTE Corporation |