**3GPP TSG-RAN WG3 Meeting #123 R3-24xxxx**

**Athens, Greece, March 26 – March 1, 2024**

**Agenda item:** 9.1.41

**Source:** Qualcomm Incorporated

**Title:** SoD IAB discussion

**Document for:** Discussion

# 1 Introduction

This report captures the summary of:

**CB: # IAB\_Discussion**

* **Discuss open points captured above**
* **Merge agreements into assigned revisions**
* (Moderator – Qualcomm)

# 2 Proposals for chair

**Proposal 1: Agree to CR to TS38.401 in R3-240487, revised in R3-240975**

**Proposal 2: Agree to CR to TS38.473 in R3-240179, revised in R3-240977**

**Proposal 3: Agree to CR to TS38.423 in R3-240442, revised in R3-2430978**

**Proposal 4: Agree to CR to TS38.420 in R3-240629, revised in R3-240982**

**Proposal 5: Agree to CR to TS 38.413 in** [**R3-240631**](file:///D:\会议硬盘\TSGR3_123\Docs\R3-240631.zip)**, revised in R3-240987**

**Proposal 6: Add the following Note to TS 38.401, section 8.9.14 on Mobile IAB-node authorization:“The implementation should ensure that the IAB TRANSPORT MIGRATION MANAGEMENT procedure is initiated once the F1 setup of the mobile IAB-DU or the mobile IAB-MT migration has completed, so that the RRC-terminating IAB-donor can send the updated authorization status via the IAB TRANSPORT MIGRATION MODIFICATION REQUEST message.”**

**Proposal 7: Add the following Note to TS 38.401, section 7.8 on PCI Optimisation Function:“For mobile IAB deployments, the legacy mechanisms can be reused for PCI collision detection. The PCI space can be partitioned between mobile IAB cells and stationary cells by implementation.”**

# 3 Discussion

## Issue 1

**Chair notes from online discussion:**

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| **Capture in TS38.401 that:**  **After F1 Setup by IAB-DU and/or MT migration, the DU’s CU should always initiate the TM Management procedure toward the MT’s CU so that the MT’s CU can initiate the TM Modification procedure in case it needs to send an authorization status update.**  **To be continued, how to word the common understanding on this issue.**  **Baseline so far: It is common understanding that the TM management procedure shall be run before a DU can serve any UE in order for the DU to operate in an authorized way.** |

Some companies would like to mandate the common understanding above in 38.401. Other companies believe that no specific behaviour should be mandated. One compromise would be to capture the proper flow of events without any specific mandate on when any of these messages has to be sent.

The moderator proposes to add the following NOTE to Section 8.9.14 on mobile IAB-node authorization:

**Proposal 6: Add the following Note to TS 38.401, section 8.9.14:**

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| 8.9.14 Mobile IAB-node authorization …  In case the mobile IAB-MT and its co-located mobile IAB-DU connect to different IAB-donor-CUs, the RRC-terminating IAB-donor sends the updated authorization status to the F1-terminating IAB-donor-CU via the IAB TRANSPORT MIGRATION MODIFICATION REQUEST message. The F1-terminating IAB-donor-CU confirms the reception of the updated authorization status via the IAB TRANSPORT MIGRATION MODIFICATION RESPONSE message.  NOTE 1: In absence of Xn connectivity between the RRC-terminating IAB-donor-CU and the F1-terminating IAB-donor-CU, the passing of the authorization status is left up to implementation.  NOTE 2: The implementation should ensure that the IAB Transport Migration Management procedure has been initiated, so that the RRC-terminating IAB-donor can send the updated authorization status via the IAB Transport Migration Modification procedure. |

**Q1: Do you agree with this proposal, and/or propose any changes?**

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| **Company** | **Comments** |
| Canon | Proposed rewording as the time of authorization status update is not predictable: The implementation should ensure that the IAB TRANSPORT MIGRATION MANAGEMENT procedure has been initiated ~~before the authorization status update~~ once the F1 setup of the mobile IAB-DU is completed or during the mobile IAB-MT migration, so that the RRC-terminating IAB-donor can send the updated authorization status via the IAB TRANSPORT MIGRATION MODIFICATION REQUEST message. |
| Huawei | Agree, ok with Canon’s rewording. |
| ZTE | Ok to add a note. Some rewording based on Canon’s version:  The implementation should ensure that the IAB TRANSPORT MIGRATION MANAGEMENT procedure would be initiated ~~before the authorization status update~~ once the F1 setup of the mobile IAB-DU is completed or during the mobile IAB-MT migration, so that the RRC-terminating IAB-donor can send the updated authorization status via the IAB TRANSPORT MIGRATION MODIFICATION REQUEST message. |
| Nokia | Ok to add a note.  It is ok to use “once F1 Setup”, as I explained during the meeting. Also, since DU’s CU cannot know when status is updated, so please delete the text related to “before”. Please find our update above. |
| Lenovo | Ok to add a note, and propose following rewording:  The implementation should ensure that the IAB TRANSPORT MIGRATION MANAGEMENT procedure has been initiated ~~before the authorization status update~~ to obtain the authorization status from the RRC-terminating IAB-donor, so that the RRC-terminating IAB-donor can send the updated authorization status via the IAB TRANSPORT MIGRATION MODIFICATION REQUEST message. |
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**Moderator’s summary:**

It seems we are converging on:

**Proposal 6: Add the following Note to TS 38.401, section 8.9.14 on Mobile IAB-node authorization:“The implementation should ensure that the IAB TRANSPORT MIGRATION MANAGEMENT procedure is initiated once the F1 setup of the mobile IAB-DU or the mobile IAB-MT migration has completed, so that the RRC-terminating IAB-donor can send the updated authorization status via the IAB TRANSPORT MIGRATION MODIFICATION REQUEST message.”**

## Issue 2

**Chair notes from online discussion:**

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| **RAN3 to discuss whether to add a description in 38.401 on PCI collision avoidance for mobile IAB.** |

The WID includes the following objective related to PCI collision:

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| * *Mitigation of interference due to IAB-node mobility, including the avoidance of potential reference and control signal collisions (e.g. PCI, RACH). [RAN3, RAN2]* |

After discussion, RAN3 agreed:

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| **PCI space partitioning via OAM configuration can be used in some cases for avoidance of PCI collisions.**  **From RAN3 perspective, existing mechanism can be used for PCI collision detection in mobile IAB scenario. Further enhancement is FFS.**  **PCI Space Partitioning is performed by OAM and up to implementation.**  **As baseline, to avoid PCI collision, F1-terminating IAB-donor can reconfigure PCI for the cell of mobile IAB-DU via existing F1AP message.**  **PCI collision can be detected by the F1-terminating IAB-donor of the mobile IAB-node.** |

We already had long discussion, whether anything needs to be added to 38.401 related to this topic. Some companies believe something should be added, others believe that this is not necessary.

It is not helpful to repeat this discussion. Instead, we could try to converge on a bare-minimum description of RAN3’s findings on this topic for mobile IAB.

[R3-240286](file:///D:\会议硬盘\TSGR3_123\Docs\R3-240286.zip) proposes:

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| 8.9.x PCI collision avoidance for mobile IAB The PCI of mobile IAB-DU’s cell is configured by the OAM, and it can be reconfigured by the F1-terminating IAB-donor-CU serving the mobile IAB-DU, in case of an PCI collision with other cells. PCI space partitioning between mobile IAB cells and stationary cells can be performed by OAM for avoidance of PCI collision and it’s up to implementation. |

The moderator has the following concerns with this CR:

* Since RAN3’s solution is based on the existing mechanisms for PCI Optimization described in section 7.8, and entitled “PCI Optimisation Function”, any mIAB-related PCI Optimization should be captured in the same section.
* Adding OAM-based configuration as a mean to configure PCI of mIAB-DU cells is not necessary since this is already defined in section 7.8.
* It might be helpful adding a sentence to explain why mobile IAB needs special discussion.

The moderator proposes the following candidate text:

**Proposal 7: Add the following clarification related to PCI collision avoidance to TS 38.401, section 7.8:**

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| 7.8 PCI Optimisation Function The PCI Optimization Function in non-split gNB case is specified in TS 38.300 [2].  In split gNB architecture, the OAM configures a PCI for each NR cell to the gNB-DU.  For centralized PCI assignment in split gNB architecture, the gNB-CU detects PCI conflict of NR cells and reports the NR cells suffering PCI conflict to OAM directly. The OAM is in charge of reassigning a new PCI for the NR cell subject to PCI conflict.  For distributed PCI assignment in split gNB architecture, the OAM assigns a list of PCIs for each NR cell and sends the configured PCI list to the gNB-CU. If the gNB-CU detects PCI conflict, the gNB-CU may select a new PCI value from the preconfigured PCI list for the NR cell and send it to the gNB-DU by either F1 Setup procedure or gNB-CU configuration update procedure.  For mobile IAB deployments, PCI collision and/or PCI confusion due to mobile IAB-node mobility should be avoided. The legacy mechanisms can be used for PCI collision detection. The PCI optimization function defined in TS 38.300 [2] can be used for PCI reconfiguration. Also, the PCI space can be partitioned between mobile IAB cells vs. stationary cells by implementation. |

**Q2: Do you agree with Proposal 7 and/or propose changes?**

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| **Company** | **Comments** |
| Canon | OK with proposal 7 |
| Huawei | Although it is not necessary, ok to add if companies insist. |
| ZTE | Agree to capture RAN3 agreements somewhere in 38.401. Some rewording based on QC’s version:  For mobile IAB deployments, PCI collision and/or PCI confusion due to mobile IAB-node mobility should be avoided. The legacy mechanisms can be used for PCI collision detection. The PCI optimization function can be used for PCI reconfiguration. Also, the PCI space can be partitioned between mobile IAB cells vs. stationary cells via OAM by implementation. |
| Nokia | Same view as Huawei. Since there is no issue for not having any CR, so please keep it short.  No issue for PCI confusion.  For mobile IAB deployments, the legacy mechanisms can be reused for PCI collision detection. The PCI space can be partitioned between mobile IAB cells and stationary cells by implementation. |
| Lenovo | Accept to add this part if most companies agree.  And agree with Nokia’s rewording. |
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## Other issues

All other issues will be handled by the CR to 38.401.

**Moderator’s summary:**

It seems we are converging on:

**Proposal 7: Add the following Note to TS 38.401, section 7.8 on PCI Optimisation Function:“For mobile IAB deployments, the legacy mechanisms can be reused for PCI collision detection. The PCI space can be partitioned between mobile IAB cells and stationary cells by implementation.”**