**3GPP TSG-RAN WG2 Meeting #110e R2-20xxxxx**

**Online, June 1 – June 12, 2020**

**Agenda item:** 6.1.2

**Source:** Qualcomm Incorporated (Rapporteur)

**Title:** [AT110e][041][IAB] 3800/36300 – Open issues

**Document for:** Discussion

# Introduction

This document handles TS 38300/36300-related open issues as part of offline email discussion:

* [AT110e][041][IAB] Stage-2 (Qualcomm, Huawei)

Scope: Treat papers under 6.1.2, issues, corrections etc, Capture meeting agreements impact to TS. Can take into account LSes etc, Endorsed CRs from last meeting is the baseline for further updates, if any are agreeable,

 Intended outcome: Agreed CRs 38300 36300 (QC), 37340 (Huawei)

 Deadline: June 11, 0700 UTC

There have been several contributions on the support of other Rel-16 features with IAB.

* R2-2005520 proposes that IAB should not support 2-Step RACH, NR-U, IIoT and UE power saving.
* R2-2004782 and R2-2005672 propose that IAB support CHO. R2-2004782 further discusses related specification impact.
* R2-2005628 provides a list of Rel-16 WIs with some recommendations on cross-Rel-16-feature support.

This email discussion aims to converge on the subset of Rel-16 features that can be supported with IAB and to identify the corresponding impact on specification. This discussion follows the feature list provided by R2-2005628.

We need to differentiate, if:

1. A feature is supported for IAB, i.e., it improves IAB performance/functionality
2. A feature is supported for UEs connected to IAB.

Section 2 focuses on feature support for IAB. Section3 focuses on feature support for UEs connected to IAB.

Section 4 aims to identify other open issues related to stage-2.

**Summary:**

Support of other Rel-16 features for IAB:

* There is a lot of scepticism to use other Rel-16 features for Rel-16 IAB, especially if it needs discussion and/or specification.
* A majority of companies are in favour of the support of mobility enhancements, DCCA, eMIMO and SON/MDT for IAB, at least as long as this can be done without specification change. These features should be optional.
* It is rapporteur’s view that Rel-16 CLI should already be applicable for IAB, i.e., without specification change. The majority of companies seem to agree with this observation.
* Support for NPN was not assesses since it is handled by a separate discussion.
* Support for capability signalling is FFS.

**Proposal 1: In this release, RAN2 will not spend time on specification for the support of other Rel-16 features for Rel-16 IAB (apart from those already agreed).**

**Proposal 2: If supported without specification change, other Rel-16 features may be optionally used by Rel-16 IAB.**

**Proposal 3: Capability signalling for the support of Rel-16 features for IAB is FFS.**

Support of Rel-16 features for UEs connected to IAB:

* The majority of companies believe that there should be no restriction of features for UEs connecting to IAB. It should remain up to the CU to decide if a service can be delivered to the UE.

**Proposal 4: RAN2 will not define any feature restrictions for UEs connecting to IAB.**

# 2 Discussion: Features supported for IAB

2.1 NR-U support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | No | While beneficial for IAB, more discussion is needed. This can be done in Rel-17. |
| KDDI | No | We are basically negative to start the discussion for its impact. RAN plenary approval is needed to start the discussion. |
| vivo | No | Postpone to Rel-17. |
| Ericsson | No | **Our comment applies to this and all other subsections under section 2.** In general, we disagree on combining features without having a proper discussion and analysis of the protocol and ASN.1 impacts of the support. There could also be a RAN3 impact. This last meeting is not appropriate to start doing such studies and analysis. Thus, considering this is the last meeting, we disagree on combining the support of features that have not been discussed and agreed before. |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required.  |
| AT&T | No | This is not needed in Rel-16, but can be discussed in a future release  |
| Apple | No | We will need a discussion like others have suggested previously. Should however be considered for Rel-17. |
| ZTE | No | We see no motivations for IAB node to support NR-U feature. |
| Nokia, Nokia Shanghai Bell |  | General comment for each of the features under section 2:- we don’t see a reason to restrict the usage of a feature if it comes without specification changes to support this for IAB.- otherwise, at this phase, we would not like to start investigating the impacts except for NPN which is already being discussed. |
| Huawei | No |  |
| Lenovo | No |  |
| CATT | No |  |
| LG | No |  |

Summary: NR-U should not be supported for IAB in Rel-16.

2.2 V2X support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

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| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | No | Not needed for IAB |
| KDDI | No | We are basically negative to start the discussion for its impact. RAN plenary approval is needed to start the discussion. |
| vivo | No | Not needed in Rel-16. |
| Kyocera | No | We don’t think there is need to support Sidelink for BH link.  |
| AT&T | No | This is not needed in Rel-16, but can be discussed in a future release |
| Apple | No | We don’t think this feature is needed for IAB.  |
| ZTE | No | Not needed for IAB. |
| Huawei | No |  |
| Lenovo | No |  |
| CATT | No |  |
| LG | No |  |

**Summary: V2X should not be supported for IAB in Rel-16.**

2.3 RACS support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

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| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | May be | We have not yet agreed if IAB-MT uses UE capabilities. |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| Apple | Maybe | As Qualcomm mentioned, will be better to discuss this once the UE capabilities discussion is done.  |
| ZTE | Maybe | If no addition specification impact is identified, it is agreeable for IAB node to support this feature.  |
| Huawei | No |  |
| CATT | Maybe | Need more time to check spec impact. Also UE cap framework for IAB MT not very clear. |
| LG | No |  |

**Summary: RACS support for IAB in Rel-16 is FFS.**

2.4 IIOT support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

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| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | No | Not clear which aspect of IIOT would apply to IAB apart from URLLC and NPN, which are captured in separate sub-sections. |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | No | Good to support this feature but probably in R-17 |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| AT&T | Yes | Given there is no specification impact, usage of the feature can be left to network implementation where appropriate. This does not preclude enhancements specific to IAB in Rel-17 |
| Apple | No | No for Rel-16. We can definitely look at this for Rel-17. At this stage it is not clear how and what parts of IIOT are beneficial for IAB nodes and what specification changes are needed.  |
| ZTE | No | We see no strong motivation to support this feature in Rel-16. |
| Huawei | No |  |
| Lenovo | No | Can be discussed in the future release. |
| CATT | No |  |
| LG | No |  |

**Summary: IIOT should not be supported for IAB in Rel-16.**

2.5 URLLC support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

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| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | No | URLLC may certainly be beneficial for latency reduction on BH. However, this needs more discussion which should be done in Rel-17. |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | No | Postpone to Rel-17. |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| AT&T | Yes | Given there is no specification impact, usage of the feature can be left to network implementation where appropriate. This does not preclude enhancements specific to IAB in Rel-17 |
| Apple | No | We need more discussion and this is a good topic for Rel-17. |
| ZTE | No | We may discuss this in Rel-17. |
| Huawei | No |  |
| Lenovo | No |  |
| CATT | No |  |
| LG | No |  |

**Summary: URLLC should not be supported for IAB in Rel-16.**

2.6 Positioning support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

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| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | No | IAB-MTs are considered stationary, and therefore, positioning is not needed. |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | No | The deployment of IAB in Rel-16 is well planned. |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| Apple | No | Not sure why IAB nodes would need positioning enhancements.  |
| ZTE | No | Agree with QC that positioning feature is not supported for IAB since Rel-16 only support stationary IAB node. |
| Huawei | No |  |
| Lenovo | No |  |
| CATT | No |  |
| LG | No |  |

**Summary: Positioning should not be supported for IAB in Rel-16.**

2.7 Mobility Enhancements support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | Depends… | Fast MCG recovery: already agreed CHO: should be supported; this has implications on stage-2 as discussed in R2-2004782.DAPS: not needed for Rel-16 IAB since the benefits are wiped out by the interruption time due to IPsec setup and F1AP signalling after IAB-MT migration. |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | No | Except fast MCG recovery, the support of other feature such as CHO or DAPS need more discussion. This also links to the MT measurement functionality. We don’t have enough time to discuss the detail right now. |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. We think the fast MCG recovery is not eMob but DCCA.  |
| AT&T | Yes | At least CHO can have some benefits for IAB |
| Apple | Maybe | We need more discussion.  |
| ZTE | No | It is necessary to further discuss the potential spec impact to support this feature for IAB. Due to the limited time, it is suggested to discuss it in Rel-17. |
| Huawei | No | We see the benefits but are not sure about the potential spec impact since this is the last meeting. We cannot guarantee there is no spec impact or other WG impact just by voting. The logic should be: if we identify some spec impacts, the feature should not be supported. If we cannot identify spec impact for now, **we are not sure if more spec impact will be identified in the next meeting. We should not make any clear agreement on supporting those feature, on which we see the benefit but see no spec impacts for now. Sure, it is not forbidden.** If it works by current spec, it can be supported by implementation anyway.This comments apply to the reset question in section 2. |
| Lenovo | Yes | Mobility enhancement in Rel-16 is CHO, DAPS and T312, which has benefits for IAB robustness. We can support them without IAB specific enhancement in Rel-16. We don’t see the specification impact. |
| CATT | No | R16 mob Eh is for further enhancement to mobility, which is not very important for this IAB release. Need more time to check the possible impact as well. |
| LG | Depends | depends on capability. But the potential impact of supporting those features are fully investigated.  |

**Summary: Several companies feel that mobility enhancement (CHO, DAPS, etc) is certainly beneficial for IAB but that more discussion is needed. Therefore, mobility enhancements should not be supported for Rel-16 IAB.**

2.8 DCCA support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

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| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | Yes | As long as stage-3 specifications can be used off the shelf. |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | Yes | This can be useful for IAB. |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| AT&T | Yes | Given there is no specification impact, usage of the feature can be left to network implementation where appropriate. This does not preclude enhancements specific to IAB in Rel-17 |
| Apple | Yes | Without specification impacts. Otherwise we can revisit in Rel-17. |
| ZTE | Yes | It is suggested to support this feature. |
| Huawei | No | We only agree the MCG/SCG failure recovery, but not for the other sub-feature |
| Lenovo | Yes | We have already supported SCG and MCG failure recovery. we also can support other feature agreed in DCCA. |
| CATT | No | Agree with Huawei. Also DCCA has some features for power saving or more efficient inactive to connection transition, which seem not critical for IAB. |
| LG | Depends | depends on capability. But the potential impact of supporting those features are fully investigated.  |

**Summary: 8 of 13 companies believe that DCCA should be supported for IAB (in addition to MCG/SCG failure recovery). 5 of 13 companies believe that the other DCCA features should not be supported or need more discussion. There is no time for further discussion in this meeting but DCCA features can certainly be used based on implementation.**

2.9 Power saving support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | No | Not critical for IAB-node.  |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | No | Could be useful for IAB-MT but right now we have no sufficient time to discuss the IAB specific issues in Rel-16.  |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| Apple | No | If Inactive mode is optional, then this feature from our view is even less critical for IAB nodes.  |
| ZTE | No | We see no strong motivation for IAB node to support power saving. |
| Huawei | No |  |
| Lenovo | No | IAB is a network nod. The current power saving is designed for UE. |
| CATT | No |  |
| LG | No |  |

**Summary: Power savings should not be supported for IAB in Rel-16.**

2.10 SON/MDT support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | Yes | As long as stage-3 specifications can be used off the shelf.  |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | Yes | This can be useful for IAB. |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| AT&T | Yes | Given there is no specification impact, usage of the feature can be left to network implementation where appropriate. This does not preclude enhancements specific to IAB in Rel-17 |
| Apple | Yes | Agree with the others arguments.  |
| ZTE | Yes | It is beneficial for the network organization. |
| Huawei | No | We see the benefits but are not sure about the potential spec impact since this is the last meeting. |
| Lenovo | Yes | It is helpful for network robustness. |
| CATT | maybe |  |
| LG | Depends | depends on capability. But the potential impact of supporting those features are fully investigated.  |

**Summary: 8 of 13 companies believe that SON/MDT should be supported for IAB. 5 of 13 companies believe that SON/MDT should not be supported or that it needs more discussion. There is no time for further discussion, but SON/MDT can certainly be used based on implementation.**

2.11 2-step RACH support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

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| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | May be | This feature is not critical for IAB, and the benefits can be expected negligible. It could still be used off the shelf, i.e., without specification impact. |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | No | This requires discussion in RAN1. |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| AT&T | Yes | Given there is no specification impact, usage of the feature can be left to network implementation where appropriate. This does not preclude enhancements specific to IAB in Rel-17 |
| Apple | Yes | If without any specification changes. We can re-visit Rel-17 for any enhancements.  |
| ZTE | Yes | We think it is beneficial for IAB node to support this feature.  |
| Huawei | No | We see the benefits but this requires some R1 discussion. |
| Lenovo | No | It is not critical issue for IAB, which can be discussed in future release. |
| CATT | No |  |
| LG | No |  |

**Summary: 5 of 13 companies believe that 2-step RACH should be supported for IAB. 7 of 13 companies believe that it is not critical. We therefore should not support 2-step RACH for Rel-16 IAB.**

2.12 SRVCC support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | No | Not needed |
| KDDI | No | Not needed from our perspective |
| vivo | No | Not needed  |
| Kyocera | No | We don’t think the voice function is needed for BH link.  |
| Apple | No |  |
| ZTE | No | We usually think there is no traffic generated by IAB node except OAM traffic. |
| Huawei | No |  |
| Lenovo | No |  |
| CATT | No |  |
| LG | No |  |

**Summary: We should not support SRVCC for Rel-16 IAB.**

2.13 CLI support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | Yes | Important feature for inter-backhaul and inter-access/backhaul interference management. This was discussed during Rel-16 WID. The CLI WI was supposed to support IAB-compliant specifications.  |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | Yes | This could be an optional feature for IAB |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| AT&T | Yes | Same view as QC |
| Apple | Yes | This will be useful as mentioned by QC above given no specification changes. However, this item should be definitely on the Rel-17 list for any modifications needed.  |
| ZTE | Yes | It is beneficial for IAB node to support CLI feature. |
| Huawei | No | We see the benefits but not sure about the potential spec impact since this is the last meeting. |
| Lenovo | Yes |  |
| CATT | maybe | Need more time to check spec impact. RAN4 requirement definition unclear either.  |
| LG | Yes | We share QC’s view.  |

**Summary:**

**9 out of 13 companies believe CLI should be supported for Rel-16 IAB. One company believes that it should not, another company wants to check spec impact and two more companies are generally opposed to using other Rel-16 features for Rel-16 IAB. No company sees any problem to use Rel-16 CLI off the shelf for IAB.**

**The rapporteur would like to stress that CLI support was discussed during Rel-16 IAB WI discussion. At that time companies felt that it should be handled by the Rel-16 CLI WI. Therefore, Rel-16 CLI features should be usable by Rel-16 IAB without further specification. No agreement should be necessary at this point.**

2.14 eMIMO support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | Yes | As long as specification is used off the shelf. |
| KDDI | Yes | At this moment we cannot come up with an issue, it seems no additional specification impact. |
| vivo | Yes | This could be an optional feature for IAB |
| Kyocera | Yes | We think it’s beneficial, as long as the specification change is not required. |
| AT&T | Yes | Given there is no specification impact, usage of the feature can be left to network implementation where appropriate. This does not preclude enhancements specific to IAB in Rel-17 |
| Apple | Yes |  |
| ZTE | Yes |  |
| Huawei | No | We see the benefits but not sure about the potential spec impact since this is the last meeting. |
| Lenovo | Yes |  |
| CATT | Maybe not | R16 eMIMO includes mTRP support and beam management enh on top of R15 MIMO. For early IAB deployment this seems not critical.  |
| LG | Depends | depends on capability. But the potential impact of supporting those features are fully investigated.  |

**Summary: Most companies feel that this can be used off the shelf and no further specification is necessary.**

2.15 NPN support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | May be | There is a separate thread on this topic. RAN2 further agreed to not touch this subject before we heard back from RAN3 and CT1 that they would support this features. |
| KDDI | Yes | We are now discussing under [AT110-e][049][IAB] Other (Huawei) |
| vivo | No | We can further discuss this in Rel-17 |
| Kyocera | Yes | It’s already agreed that “R2 make an attempt to support IAB functionality in non-public network deployments in R16 in R2#109bis and R2#110 meeting.” Note that the LS (R2-2004282) was sent To RAN3 and SA2, but CC: CT1.  |
| AT&T | Yes | Assuming a positive response from RAN3/SA2 |
| Apple | Maybe | Depending on responses from R3/SA2.  |
| ZTE | Maybe | Depends on the feedback from RAN3 and SA2. |
| Nokia, Nokia Shanghai Bell | Yes | Agree with KDDI. |
| Lenovo | Yes |  |
| CATT | yes | Discussed and agreed. |
| LG | Yes | This is under discussion in other offline discussion.  |

**Summary: Handled in separate offline.**

2.16 TEI support for IAB

**Questions:**

* Should this feature be supported for IAB? (YES: (very) beneficial; NO: not (really) needed)
* What is the specification impact? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

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| --- | --- | --- |
| **Company** | **Support?****(YES/NO)** | **What is the specification impact? Other comments.** |
| QC | TBD | TBD |
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**Summary: FFS**

# 3 Features supported for UE connected to IAB

3.1 NR-U support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | No problem as long as BH uses NR. |
| KDDI | No | We are basically negative to start the discussion for its impact. RAN plenary approval is needed to start the discussion. |
| vivo | Yes | This could be an optional feature for IAB. |
| Ericsson | Yes | **Our comment applies to this and all other subsections under section 3.** In general, a UE does not know if it is connecting to an IAB or a regular gNB. From that point of view, the configuration that the CU provides to the UE will depend on the CU and if it can deliver the service or not. URLLC is one example. A UE may be URLLC and whether the network can provide the service or not is independent of what the UE supports. We do not see any reason to restrict features when a UE connects to an IAB. |
| Kyocera | Yes | Transparent to IAB. We agree with Ericsson’ view above.  |
| AT&T | Yes | We agree with Ericsson for all features in Section 3. At least for Rel-15/16 features there is no need for UEs to be aware of whether a feature is provided by an IAB or non-IAB node. Usage of the feature can be left to network implementation where appropriate. |
| Apple | Yes | Agree with Ericsson and AT&T here for all items under Section 3. UE and associated service requirements should not be impacted whether the network implements traditional or IAB networks.  |
| ZTE | Yes | We tend to agree with the comments from Ericsson, Kyocera, AT&T, and Apple. The UE can support Rel-15/16 features no matter the IAB network provides services with those features or not. |
| Nokia, Nokia Shanghai Bell | Yes | Agree with Ericsson. |
| Huawei | No need of this discussion | **For R16 UE connected to IAB, the question should be discussed in each other WI, rather than in IAB WI.** For example, **the NR-U WI should decide if R16 UE can apply NR-U in CU-DU architecture.** The IAB design is transparent to UE, which is same as CU-DU architecture from UE perspective.Our comments apply to the rest question of section 3. |
| Lenovo | Yes |  |
| CATT | See comments | Understanding is that R16 IAB WI does not has changes to Uu. so why is this an issue? |
| LG | Yes | We also share Ericsson and AT&T views on this section.  |

3.2 V2X support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB |
| KDDI | No | We are basically negative to start the discussion for its impact. RAN plenary approval is needed to start the discussion. |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.3 RACS support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.4 IIOT support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | No | Not clear which aspects this includes apart from URLLC and NPN which are captured separately. TSN over multi-hop BH is not supported. |
| KDDI | Yes | Transparent to IAB |
| vivo | no | The QoS guarantee of IAB shall be further enhanced to support IIoT. We can discuss this in Rel-17. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.5 URLLC support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | No |  Not supported over multi-hop BH. |
| KDDI | Yes | Transparent to IAB |
| vivo | No |  The QoS guarantee of IAB shall be further enhanced to support URLLC. We can discuss this in Rel-17. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.6 Positioning support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | IAB-DUs are time synchronized as wireline DUs. Not clear if anything else is needed. |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes but… | It depends on the network and UE is transparent. The synchronization issue shall be discussed from the perspective of positioning. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.7 Mobility Enhancements support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB. |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.8 DCCA support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB. |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.9 Power saving support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB. |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.10 SON/MDT support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB. |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.11 2-step RACH support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB. |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.12 SRVCC support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB. |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

2.13 CLI support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB. |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.14 eMIMO support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB. |
| KDDI | Yes | Transparent to IAB |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.15 NPN support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | Yes | Transparent to IAB. |
| KDDI | Yes | We are now discussing under [AT110-e][049][IAB] Other (Huawei) |
| vivo | Yes | Seems no impact for IAB. |
| Kyocera | Yes | Transparent to IAB.  |
| ZTE | Yes |  |
| Lenovo | Yes |  |

3.16 TEI support for IAB

**Questions:**

* Is there any problem if this feature is supported for UEs connecting to IAB? (YES: (very) beneficial; NO: not (really) needed)
* What needs to be done to provide UE support of this feature? (please provide specifics, i.e., stage-2 vs. stage-3, ASN.1, protocols affected, etc.)

|  |  |  |
| --- | --- | --- |
| **Company** | **UE-supported?****(YES/NO)** | **What needs to be done to provide UE support? Other comments.** |
| QC | TBD | TBD |
|  |  |  |
|  |  |  |
|  |  |  |

# 4 Other open issues

**Question:**

* Are there any other open issues related to stage-2 38300/36300?

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |
|  |  |

# 5 Conclusion

**Summary:**

Support of other Rel-16 features for IAB:

* There is a lot of scepticism to use other Rel-16 features for Rel-16 IAB, especially if it needs discussion and/or specification.
* A majority of companies are in favour of the support of mobility enhancements, DCCA, eMIMO and SON/MDT for IAB, at least as long as this can be done without specification change. These features should be optional.
* It is rapporteur’s view that Rel-16 CLI should already be applicable for IAB, i.e., without specification change. The majority of companies seem to agree with this observation.
* Support for NPN was not assesses since it is handled by a separate discussion.
* Support for capability signalling is FFS.

**Proposal 1: In this release, RAN2 will not spend time on specification for the support of other Rel-16 features for Rel-16 IAB (apart from those already agreed).**

**Proposal 2: If supported without specification change, other Rel-16 features may be optionally used by Rel-16 IAB.**

**Proposal 3: Capability signalling for the support of Rel-16 features for IAB is FFS.**

Support of Rel-16 features for UEs connected to IAB:

* The majority of companies believe that there should be no restriction of features for UEs connecting to IAB. It should remain up to the CU to decide if a service can be delivered to the UE.

**Proposal 4: RAN2 will not define any feature restrictions for UEs connecting to IAB.**