3GPP TSG-RAN WG2 #118-e Tdoc R2-22xxxxx

**Electronic meeting, May 9th – 20th, 2022**

Agenda Item: 6.11.1

Source: Ericsson

Title: [AT118-e][630][POS] LS on DL-AoD signalling load (Ericsson)

Document for: Discussion, Decision

# 1 Introduction

This document is to kick off the following email discussion:

* [AT118-e][630][POS] LS on DL-AoD signalling load (Ericsson)

      Scope: Discuss the concern on signalling load raised in R2-2204491 and draft a reply.

      Intended outcome: Approved LS (without CB if possible)

      Deadline:  Tuesday 2022-05-17 1800 UTC

# 2 Contact Information

|  |  |
| --- | --- |
| Company | Contact: Name (E-mail) |
| Intel | Yi Guo (yi.guo@intel.com) |
| ZTE | pan.yu24@zte.com.cn |
| Apple | Sasha Sirotkin <ssirotkin@apple.com> |
| vivo | Xiang Pan (panxiang@vivo.com) |
| CATT | Jianxiang Li (lijianxiang@catt.cn) |
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# 3 References

1. R2-2204491, " Questions concerning the implementation of RAN1 agreements in NRPPa ", RAN3.
2. R2-2205807, “Correction of signalling in stage 2 to align with NRPPa”, Ericsson

# 4 Discussions

In [1], RAN3 sends LS regarding the mitigation for DL-AoD signalling load:

“Based on the assistance information for DL-AoD specified by RAN1/RAN2, the corresponding NRPPa signaling could require, in the case where maximum granularity is used uniformly in azimuth and elevation, an excess of 6 million relative powers per TRP / resource to be signaled over NRPPa and, as consequence, via F1-AP and per NG-RAN design, over NG transport. RAN3 assumes (and would like to confirm) that realistic implementations would not require this high level of data volume traffic and would also use this function sparingly.

RAN3 has agreed to include some mitigations over NRPPa/F1AP, e.g. allowing for the indication of “no change” if a previous TRP beam antenna configuration is still valid.

Note that, as with other TRP configuration items, RAN3 has agreed that OAM is also a possible option for providing such information to LMF.”

The above DL-AoD assistance information refers to TRP Beam Antenna Information in Table 8.11.2.3-1 in TS 38.305. The below subsection is combined with the CR in [2],

8.11.2.3 Information that may be transferred from the gNB to LMF

The assistance data that may be transferred from gNB to the LMF is listed in Table 8.11.2.3-1.

**Table 8.11.2.3-1: Assistance data that may be transferred from gNB to the LMF**

|  |
| --- |
| **Information**  |
| PCI, GCI, ARFCN, and TRP IDs of the TRPs served by the gNB |
| Timing information of TRPs served by the gNB |
| DL-PRS configuration of the TRPs served by the gNB |
| SSB information of the TRPs (the time/frequency occupancy of SSBs) |
| Spatial direction information of the DL-PRS Resources of the TRPs served by the gNB |
| Geographical coordinates information of the DL-PRS Resources of the TRPs served by the gNB |
| TRP type |
| On-demand PRS TRP Information |
| TRP Beam Antenna Information |

## 4.1 Spec change TS 38.305

To address RAN3’s concern on the signalling load when the full granularity of the TRP Beam antenna information is signalled and for signalling mitigation approach, we RAN2 can capture the OAM as a possible option for providing TRP Beam Antenna Information to LMF as a note and added in the TS 38.305.

#### 8.11.2.3 Information that may be transferred from the gNB to LMF

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Table 8.11.2.3-1: Assistance data that may be transferred from gNB to the LMF

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| SSB information of the TRPs (the time/frequency occupancy of SSBs) |
| Spatial direction information of the DL-PRS Resources of the TRPs served by the gNB |
| Geographical coordinates information of the DL-PRS Resources of the TRPs served by the gNB |
| TRP type |
| On-demand PRS TRP Information |
| TRP Beam Antenna InformationNote |

 Note: TRP beam antenna information can be provided by OAM.

**Question 1: Companies are invited to provide comments about the change to TS 38.305?**

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| --- | --- | --- |
| Company | Options | Comments |
| Huawei,HiSilicon | ? | Ok with the stage2 clarification.  |
| Intel |  | Ok with the stage 2 change. But Assume it should be merged into Rapporteur CR. |
| ZTE |  | OK with this stage 2 change |
| Apple | OK | Shouldn’t we add “also” or “alternatively” to the note? |
| vivo | OK | Agree with Apple, and add “to the LMF”, i.e.,TRP beam antenna information can also be provided by OAM to the LMF |
| CATT |  | Agree with Apple and vivo. |
| Qualcomm | ?Not O.K | This leaves the impression that only TRP Beam Antenna Information can be provided by OAM. I understand this is up to deployment and does not need to be mentioned in Stage 2. I believe we have removed similar such statements in the past. |
| Xiaomi |  | In the LS, RAN3 indicate that “as with other TRP configuration items, RAN3 has agreed that OAM is also a possible option for providing such information to LMF.” So we don’t understand why we only indicate this parameter can be provided by OAM. |
| Nokia |  Not OK | Looks like RAN3 has already decided to optimize signaling to alleviate signaling load. They also mention that OAM provisioning is also an option. We think the OAM option could be mentioned as NOTE in RAN3 stage 3, if RAN3 companies agree to it. That is an issue for discussion in RAN3. We do not see a need for adding the proposed NOTE to stage 2 specification since we are not providing them any alternate solution. We also don’t see a need to reply to RAN3 since they are only expecting a reply if we have any feedback.  |
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## 4.2 Draft LS

**3GPP TSG-RAN WG2 Meeting #118-e R2-22xxxxx**

**Electronic meeting, May 9th – 20th, 2022**

**Title: [draft] Response LS on** **DL-AoD signalling load**

**Response to: LS on Questions concerning the implementation of RAN1 agreements in NRPPa (R3-222721; contact: Ericsson)**

**Release:** Rel-17

**Work Item:** NR\_pos\_enh-Core

**Source:**

**To:** RAN WG3

**Cc:** RAN WG1

**Contact Person:**

**Name:**

**E-mail Address:**

**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

**Attachments: -**

**1. Overall Description:**

RAN2 thanks RAN3 for the LS on the DL-AoD signalling load.

RAN2 discussed and agreed to add a NOTE about the OAM option for providing the TRP Beam Antenna Information to LMF for DL-AoD and capture the NOTE to TS 38.305 as below.

#### 8.11.2.3 Information that may be transferred from the gNB to LMF

The assistance data that may be transferred from gNB to the LMF is listed in Table 8.11.2.3-1.

Table 8.11.2.3-1: Assistance data that may be transferred from gNB to the LMF

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| Information  |
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| Spatial direction information of the DL-PRS Resources of the TRPs served by the gNB |
| Geographical coordinates information of the DL-PRS Resources of the TRPs served by the gNB |
| TRP type |
| On-demand PRS TRP Information |
| TRP Beam Antenna InformationNote |

 Note: TRP Beam Antenna Information can be provided by OAM.

**2. Actions:**

**To RAN WG3 group.**

**ACTION:** RAN2 kindly asks RAN3 to check if change in TS 38.305 as above can address the RAN3 concern.

**3. Date of Next TSG-RAN2 Meetings:**

TSG-RAN WG2 Meeting #119 August 22 –26, 2022 Toulouse

TSG-RAN WG2 Meeting #119-bis October 10 – 19, 2022 Electronic Meeting

**Question 2: Companies are invited to provide further comments to the LS on top of the agreement in Q1.**

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| Company | Option | Comments |
| Huawei, HiSIlicon |  | No need to send the LS if the intention is only that this is captured in the R2 stage2 description |
| Intel |  | Ok to reply RAN3 LS on* RAN3 respectfully asks RAN1/RAN2 to provide feedback, if any, on the issue of signalling load for DL-AoD information.
 |
| Apple | No strong view  | But if we do send the LS, the action should be just “take it into account”, as currently it reads as if we may expect a reply LS and such back-and-forth is not needed. |
| vivo |  | Agree with the above that the LS reply about the Note is not essential as we just follow the RAN3 conclusion and no extra info is provided. |
| CATT |  | No need to send the LS if the update is captured in 38.305. |
| Qualcomm | No | The action to RAN2 was:* "RAN3 respectfully asks RAN1/RAN2 to provide feedback, if any, on the issue of signalling load for DL-AoD information.

Any handling of potential signalling load should be up to deployment. |
| Nokia | No | See our comments to Question 1. |
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# 5 Conclusion

Based on the discussion in the previous sections we propose the following: