[91E][27][IIoT_scope] - Version 0.0.2
RAN

3GPP TSG-RAN Meeting #91-e

Electronic Meeting, March 16-26, 2021

RP-210836

Title: Moderator's summary of email discussion [91E][27][IIoT_scope]

Agenda Item 9.7.5

Source: Moderator (Nokia)

Source: Moderator

Document for: Information

1 Introduction

This is the summary document from the dicussion on IIoT work item updated & possible guidance for the WGs based on the Tdocs RP-210263 and RP-210605, with conclusions to be reflected in the WID update as well (with first version of the WID update was submitted as RP-210264, subject to changes from the discussion naturally).

The intermediate version was to follow-up from the initial email discussion, please see section 3 for new summary and proposed way forward.

In this final version conclusions from intermediate discussion are reflected in section 5. The WID revision is in RP-210XXX

2 Questions to be answered

2. 1 The suggested proposals from RP-210263 are as follows (RP-210264 contains detailed changes proposed to the WID):

- The WID should be updated to involve RAN4 in the objective relating to the Physical Layer feedback Enhancement

- TU allocation of this work item should be updated for RAN4

Please provide your feedback below:

Feedback Form 1: Is it acceptable to update the WID by adding RAN4 impacts and TUs as suggested?

Item	Company	Comments
1	MediaTek Inc.	Yes for the "*UE feedback enhancements for HARQ-ACK*" objective as RAN1 already made agreement on PUCCH repetition that requires new RAN4 performance requirements. For the "*CSI feedback enhancements to allow for more accurate MCS selection*" objective, we don't see a need to include RAN4 yet given that there is no agreements in RAN1 on which CSI enhancement(s) should be supported.
2	Ericsson LM	We are supportive of the proposal in RP-210264 for completeness. Having said that, we would like to clarify that we don't see support of PUCCH repetition for PUCCH F0 and F2, or for sub-slot based repetition in Rel-17, needs a special RAN4 treatment. Please note that in Rel-15, the RAN4 requirements for PUCCH repetition are available only for PUCCH F1 and not for PUCCH F3 and F4 which are fundamentally different from PUCCH F1.On the PUCCH carrier switching (dynamic or semi-static), it is not clear if the proposed enhancement would be supported and if supported, which variant. In case of support of semi-static carrier switching, it is not clear whether would be an impact on RAN4 requirements. Therefore, in case of potential RAN4 impact the WID can be revised for completeness as suggested, while the change does affect the current status of RAN1 discussions on the proposed enhancements.
3	Apple Europe Limited	Note in RAN1, there is an agreement to support PUCCH repetition over sub-slots; but agreements on PUCCH carrier switching/CSI enhancements are for their study only. It should be clarified that the required RAN4 work: whether work on core or perf specifications will be involved.
4	Futurewei Technologies	Suggest to discuss relevant RAN4 scope adjustment and TU later after further progress in RAN1
5	vivo Mobile Communication Co.,	We are fine with adding RAN4 impact and TU for sub-slot PUCCH repetitions. But for other feedback enh. like PUCCH carrier switching and CSI feedback enhancements, potential RAN4 impacts can be added later if there are agreements to support these enhancements.
6	Xiaomi Communications	Yes
7	CATT	We also prefer to discuss the RAN4 impact later after RAN1 has clear agreements/conclusions on whether or not to support CSI enhancements, PUCCH carrier switching etc..
8	Motorola Mobility UK Ltd.	In principle, we agree with adding RAN4 impact. However, the detailed RAN4 work scope and corresponding TU allocation can be discussed after further progress in RAN1.

Item	Company	Comments
9	NTT DOCOMO INC.	We are fine with adding RAN4 impacts and TUs
10	LG Electronics Inc.	We share the same view with other companies that it is preferred to discuss later on the necessity of RAN4 involvement for CSI enhancement and PUCCH carrier switching, after concluding on whether to support those features in RAN1.
11	Guangdong OPPO Mobile Telecom.	In principle, we agree to add RAN4 impact. However, We prefer to discuss RAN4 scope adjustment after there is a clear agreement or conclusion on whether or not to support CSI enhancements and PUCCH carrier switching in RAN1.
12	ZTE Corporation	We are fine to include RAN4 impact at least for sub-slot PUCCH repetitions. For other aspects, it may be better to wait for RAN1 discussion first as other companies also noted.
13	Qualcomm Incorporated	It seems that the proposed additions would not be part of the core requirements but rather the performance requirements, which can start later. Due to this, we don't think it is essential to decide about the scope change now.
14	Intel Corporation (UK) Ltd	1. The proposed changes to the Core part objectives to add RAN4 as a responsible WG seem to be relevant to the RAN4 UE demodulation performance part. We think it is sufficient to add "… demodulation performance requirements (if any) for the above objectives." In the Performance part objectives to reflect this. This is a business as usual and during the Performance part RAN4 typically goes through all L1/L2 changes to identify the relevant set of Demodulation requirements. 2. For "UE feedback enhancements for HARQ-ACK"- we acknowledge that there may be certain RRM Core requirements scope, but it seems that RAN1 agreements are not stable and we prefer to wait for RAN1 conclusions before making a decision to define the RRM Core requirements.
15	Nokia Corporation	Yes, We are fine with the moderator's proposal to include RAN4 impacts and TUs . Regarding the comments that RAN1 design should be clarified first, this is perfectly aligned with the proposed update in RP-210264: "*Specify the necessary RRM and demodulation performance requirements (if any) for the above objectives.*" In any case it is business as usual that RAN4 is listed as impacted group if there are potential impacts, so that RAN4 can plan for TU allocation accordingly and indicate potentially impacted specifications. This is common practice for all the work items potentially impacting RAN4 as well. No changes are proposed for RAN1 work and studies. RAN1 should continue its work and RAN4 may only progress after RAN1 has completed its part.
16	Panasonic Corporation	Yes.
17	HUAWEI TECHNOLOGIES Co. Ltd.	We are fine to include RAN4 impacts and TU at least from the WID completeness perspective, with "(if any)" there is still room to further discuss whether any RAN4 work on RRM or demodulation needed for a certain RAN1 objective.

2.2. The Suggested updates from RP-210605 contain the following proposals:

- If no substantial progress would be achieved in RAN1#104b e-meeting, the topics of SPS HARQ skipping and payload size reduction should be deprioritized

- RAN provides guidance to RAN1 for the support of A-CSI feedback on PUCCH in URLLC/IIoT WID

These are raised as two separate questions as they are separate items, please provide your feedback below:

Feedback Form 2: Should RAN#91e provide guidance to RAN1 on the SPS HARQ skipping and payload size reduction as suggested?

Item	Company	Comments
1	MediaTek Inc.	[MediaTek] Although we don't see advantage of SPS HARQ skipping, we don't think there is a need for RAN plenary decision given the ongoing RAN1 discussion.
2	Ericsson LM	There are two enhancements under discussions: DL SPS HARQ skipping and DL SPS HARQ payload size reduction. Our understanding is that companies share different views on these topics. It is preferred to continue the corresponding discussions in RAN1 at this stage.
3	Apple Europe Limited	We don't see the need for RAN to provide guidance on discussion details in RAN1. Otherwise many topics under UCI multiplexing and CSI feedback enhancement may need RAN intervention also.
4	Futurewei Technologies	We do not see the need for RAN to provide a guidance on this item at this point. RAN1 can continue discuss.
5	vivo Mobile Communication Co.,	We don't see the need for RAN to provide guidance on discussion details in RAN1. RAN1 can continue the discussion.
6	CATT	We do not think the RAN guidance is needed at this point. It can be left to RAN1 to further discuss.
7	Motorola Mobility UK Ltd.	We are generally fine with the suggested proposal that if there is no significant proposal in next RAN1#104-b-e, we can deprioritize SPS HARQ skipping and payload size reduction. To be more specific, RAN can recommend following: "If no agreement can be made in RAN1#104-bis-e on specifying at least one alternative (from the ones that have been discussed during RAN1#104) for SPS HARQ skipping and payload reduction, then SPS HARQ skipping and payload reduction is deprioritized for IIoT WI in Rel-17".
8	LG Electronics Inc.	We share the same view with other companies that we don't see the need of RAN guidance on this point. RAN1 can continue the discussion.

Item	Company	Comments
9	NTT DOCOMO INC.	We are fine to deprioritize SPS HARQ skipping and payload size reduction if no substantial progress is achieved in RAN1#104bis-e.
10	Guangdong OPPO Mobile Telecom.	We do not think the RAN guidance is required at this point. RAN1 can continue discuss.
11	ZTE Corporation	Currently, there are too many proposed enhancements for HARQ-ACK feedback enhancements in RAN1. It is not realistic to finalize all these enhancements, and it's better to focus only on the promising enhancements and avoid wasting time on some enhancements with no strong interests from companies. Especially for SPS HARQ skipping and payload size reduction, no detailed agreements were reached till now and it is expected to be very unlikely to make further progress considering the very divergent solutions. Thus, RAN plenary guidance would be beneficial here.
12	InterDigital Communications	RAN1 can continue the discussion and no RAN guidance is needed at this point
13	Qualcomm Incorporated	We agree with the input suggested by Ericsson. If any RAN decision was to be made this week, the two enhancements: DL SPS HARQ skipping and DL SPS HARQ payload size reduction should be separated. However, we share the view also that no RAN guidance is needed on either of these two enhancements at this point.
14	Nokia Corporation	We do not see a need for RAN guidance at this point of time. In case any guidance would be provided at this meeting, there would be a need to consider a broader set of topics for meaningful discussion. Hence, we think RAN1 can continue the discussion.
15	Panasonic Corporation	Although to reduce the work is necessary especially if the progress is not well in the next meeting, no specific action is needed in this meeting.
16	HUAWEI TECHNOLOGIES Co. Ltd.	There is no need to discuss the priority of the candidate solutions in RAN and RAN1 can continue the discussion. We don't understand why SPS HARQ skipping and payload size reduction are listed as not promising either, there are many other enhancements with even smaller number of supports. It would be difficult to achieve consensus here which ones are promising which are not, therefore better to leave the discussions to RAN1.
17	Intel Korea, Ltd.	This is a RAN WG1 level discussion issue and should be sorted out in technical RAN1 discussion.

Feedback Form 3: Should RAN#91e provide guidance to RAN1 on whether the A-CSI feedback on PUCCH is included in Release 17? If guidance is provided, do you prefer to support support A-CSI on PUCCH in Release 17 or do you prefer to prioritize other topics?

Item	Company	Comments
1	MediaTek Inc.	[MediaTek] There is no gain of supporting A-CSI on PUCCH. RAN1 almost had a conclusion to not support A-CSI on PUCCH in RAN1#104-e, but it was postponed due to some overlap with other CSI enhancements. We don't see a need for RAN plenary intervention, but if there a decision to be made then it should be aligned with RAN1 latest discussion/status, which is A-CSI on PUCCH is not supported in R17.
2	Apple Europe Limited	We don't see the need for RAN to provide guidance on discussion details in RAN1. Note new CSI feedback schemes may use aperiodic CSI feedback over PUCCH, then the some exception is needed for them. RAN1 should be a more suitable place to decide on that.
3	Ericsson LM	On A-CSI on PUCCH, not only we share different view than previous comment, but also have a different understanding of RAN1 status. Currently, there are more than 10 schemes for CSI enhancements under discussion without progress on any of them. In fact, DCI triggered A-CSI on PUCCH, is the most straightforward scheme and in fact, the only candidate scheme when WID was approved. On the current situation in RAN1, in our view, the more accurate description is that the FL tried to propose a conclusion to support DCI triggered A-CSI on PUCCH, but conclusion couldn't be reached. Then FL tried to propose the opposite conclusion of not supporting A-CSI on PUCCH, this conclusion couldn't be reached either. Therefore, in our view, considering the lack of progress in RAN1 and many candidate schemes, any guideline from plenary, if any, would make sense if it is in favor of DCI triggered A-CSI on PUCCH.
4	Futurewei Technologies	We do not see the need for RAN to provide a guidance on this item at this point. RAN1 can continue discuss.
5	vivo Mobile Communication Co.,	Given the latest conclusion made in RAN1#104-e meeting that down-selection will be done at RAN1#104-b-e by taking into account evaluation results and assessment against criteria. Therefore, we think RAN1 can continue the discussion and no need for RAN to provide a guidance for now.
6	Xiaomi Communications	Firstly we agree that the topics of SPS HARQ skipping and payload size reduction should be deprioritized. However we think RAN1 can discuss and deprioritize the topics without the guidance provided by the RAN plenary.
7	CATT	This issue has been discussed in previous RAN and RAN1 meetings. We do not think RAN guidance is needed at this point. It can be left to RAN1 to further discuss and decide.

Item	Company	Comments
8	Motorola Mobility UK Ltd.	To avoid repeated discussion in RAN1, we think RAN#91e should provide the guidance to RAN1. Given that majority companies acknowledge that A-CSI on PUCCH is useful for case-2 report, RAN1 should support A-CSI on PUCCH at least for case-2 report, if case-2 report is supported.
9	LG Electronics Inc.	We share the same view with other companies that we don't see the need of RAN guidance on this point. RAN1 can continue the discussion together with other candidates.
10	NTT DOCOMO INC.	We don't see the need for RAN to provide guidance on this topic and we share the view with Apple. As "A-CSI on PUCCH" includes a number of techniques such as A-CSI on PUCCH triggered by DCI or A-CSI on PUCCH for new reporting type Case 2, it would be better to first discuss at RAN1 whether/which Case 2 technique should be supported
11	Guangdong OPPO Mobile Telecom.	We do not think the RAN guidance is required at this point. RAN1 can continue discuss.
12	ZTE Corporation	First of all, we share with Ericsson about RAN1 status, and agree that A-CSI on PUCCH is the most straightforward scheme. This has been discussed in last RAN plenary and many companies preferred to leave to RAN1 discussion. However, still no progress was made in RAN1#104-e meeting. We don't think the situation would be changed in the next meeting, especially considering there are too many proposed CSI schemes which diverges the discussion. If RAN1 cannot make a conclusion before next RAN plenary meeting, it would leave us very limited time to finalize the potential enhancements.
13	InterDigital Communications	We tend to agree with Ericsson that RAN1 cannot move forward on this topic and the situation won't be changed in the next RAN1 meetings, therefore any guidance from RAN will be helpful. Otherwise, RAN1 could continue the discussion but the A-CSI on PUCCH topic needs to be down-prioritize so that RAN1 can focus on other CSI enhancement schemes.
14	Qualcomm Incorporated	Similar to our feedback to the SPS related topic above, if any RAN decision was to be made this week, the different schemes should be separately discussed. However, we don't think any RAN guidance is needed on these at this point given that RAN1 is still evaluating them.
15	Nokia Corporation	We do not see a need for RAN guidance at this point of time. In case any guidance would be provided at this meeting, there would be a need to consider a broader set of topics for meaningful discussion. Hence, we think RAN1 can continue the discussion.
16	Panasonic Corporation	Although to reduce the work is necessary especially if the progress is not well in the next meeting, no specific action is needed in this meeting.

Item	Company	Comments
17	HUAWEI TECHNOLOGIES Co. Ltd.	We also think that A-CSI on PUCCH is the most straightforward enhancements for CSI compared to most of other enhancements, since it was the example given during the discussion of the scope of Rel-17 IIoT/URLLC WI and also benefits are expected. Therefore if we really want to give RAN guidance here, it should be concluded that we should specify A-CSI on PUCCH. However, we also think it would be very hard to achieve any consensus in RAN here, thus no need to spend time in RAN here discussing the guidance and RAN1 can continue the discussion. In addition, we don't agree that if there is no guidance here, it should be de-prioritized in RAN1 discussion, the question is why it should be the one with low priority but not others? Better to leave it to RAN1.
18	Intel Korea, Ltd.	Similar discussion took place in RANP#90, and the conclusion was that RAN1 can continue discussion. If any action would be taken this plenary, the list of schemes to be prioritized/excluded should be broader and include other enhancements. Thus, it seems better to leave discussion to RAN1 again, and check the status in the next plenary if needed.

Feedback Form 4: Is there another RAN1 item where guidance should be provided from RAN#91e besides the suggestions in RP-210605?

Item	Company	Comments
1	MediaTek Inc.	[MediaTek] No
2	Nokia Corporation	No further guidance is required for the moment.
3	HUAWEI TECHNOLOGIES Co. Ltd.	No

3 Initial summary

For the addition guidance for RAN1 on issues on-going, there was clear view not to proceed at this point in time. However some comments suggested need to revisit the situation later in future RAN meetings if RAN1 is not able to make progress during Q2, thus we may have to revisit this in future RAN plenaries.

For the WID updated there was in general agreement to reflect RAN4, but there was hesitation to conclude now on the specifically UE feedback or CSI feedback enhancements related RAN4 work.

The suggested way forward would be: Now reflect only for the performance part the suggested change adding in addition to the RRM also "and demodulation" to the WID section 4.2 (as visible in RP-210264) and to come back with the TU estimation in RAN#92-e or RAN#93-e, with the expectation of some TUs needed in RAN4 assuming positive conclusions in RAN1 either UE feedback and/or CSI related enhancements.

4 Proposed conclusion

It is suggested that RP-210264 would be revised to address section 4.2 only, no further actions in this meeting. See more details in the next RAN meeting(s) for RAN1 as well as detailed RAN4 impacts when we see better how RAN1 discussion progress.

Feedback Form 5: Can we conclude IIoT/URLLC discussion with update for section 4.2 in the WID (adding "and demodulation" for the performance part), and planning to revisit in the future need for possible RAN1 guidance and more detailed RAN4 impacts, including TUs needed.

Item	Company	Comments
1	MediaTek Inc.	[MediaTek] Agree with the proposed conclusion.
2	Samsung Research America	Fine to conclude with suggested update for section 4.2. Regarding a plan to revisit in the future for a need for possible RAN1 guidance and more detailed RAN4 impacts, we see no need for such conclusion (beyond what is generally applicable to any WID).
3	Futurewei Technologies	We are ok to add "and demodulation" for performance part. We do not see the need to conclude "and planning to revisit..." at this point of time. If it is needed in the future, we can then conclude in the future.
4	vivo Mobile Communication Co.,	Fine with the proposed conclusion.
5	Qualcomm Incorporated	We are ok with the Moderator's proposal.
6	NTT DOCOMO INC.	We are fine with the proposed conclusion
7	CATT	We are fine with the update for section 4.2. We share the similar view with Samsung and Futurewei that "and planning to revisit" is not needed for now.
8	Nokia Corporation	We support the proposed conclusion
9	ZTE Corporation	We are fine with the proposed conclusion.
10	Intel Corporation (UK) Ltd	We are fine with the moderator's proposal
11	HUAWEI TECHNOLOGIES Co. Ltd.	We are fine with adding "and demodulation" for the performance part in section 4.2. We also think that the part "and planning to..." is not necessary, whether/when to discuss the potential RAN4 impacts or potential RAN guidance would depend on the progress/discussion on the objectives in RAN1.

Item	Company	Comments
12	Guangdong OPPO Mobile Telecom.	We are fine with the update for section 4.2. We share the similar view with Samsung/Futurewei/CATT/HUAWEI that " planning to revisit" is not needed.
13	Ericsson LM	We are fine with the proposed conclusion to add "and demodulation". We also share the same view as concluding "planning to revisit" is not needed, since it would be anyway possible to revisit if adjustments in TU, etc. is needed.
14	Sony Europe B.V.	Fine with the proposal.
15	LG Electronics Inc.	We are also fine with the proposed conclusion to update section 4.2 in the WID. We also share the same view with other companies that "planning to revisit" is not needed.

5 Final conclusions

The WID is revised in section 4.2 only adding "and demodulation". Additionally the WID revision is aligned with the finalization dates to be aligned with the WI status report as commented by MCC.