3GPP TSG-RAN #92-e Draft RP-21xxxx
Online, 14-18 June 2021

Agenda Item: 5.2

Source: RAN2 Chairman (Moderator)

Title: Report of Offline Discussion [03] RAN2 TU Plan

Document for: Discussion

# Introduction

This discussion includes general aspects of RAN2 planning and specifically the TU plan. It includes tdoc RP-211256 on R4 Measurement Gap Enh and can include other impact to RAN2 plan, e.g. the discussions on Cov Enh, feMIMO also relate to R2 TU, and possibly discussions on IAB and SDT.

# Contacts

Please provide a company contact that the email discussion moderator can contact if required.

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# General RAN2 TUs

## Initial Round

Related Proposal 1 from [1]: Plenary to discuss which objectives from which WIs are to be reduced to free up RAN2 TUs for NR measurement gap enhancements WI.

How to handle new/not yet covered requests for RAN2 TUs.

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| **Company** | **Comment** |
| RAN2 Chairman | In principle there are the following options for adding TUs to RAN2 TU plan: a) For 2020Q4 and 2021Q1 there may be the possibility to move 0.5-2.5 TU from R17 Other to specific work items. The R17 Other includes R2 reserve TUsb) There could be the possibility to let RAN2 have negative total for available TUs. The principal result of such negative budget would be that RP then plans and allocates > 40TUs of RAN2, and Thus Reduces the Chairman-plannable margin (25%, ~14TUs).c) We could deprioritize some scope to reduce the TU consumption of some currently ongoing item, to free up resources. Note That the Proposal 1 in [1], Option c) indeed has some relevance, as currently in RAN2 the chair planning margin (CB time) is distributed between WIs roughly according to their size (except for particular urgencies), and currently in RAN2 on-line time is a highly needed scarce asset for any WI (=high load). As c) is in general difficult, I’d suggest to not make additions to RAN2 TU allocation be conditional to subtractions, but still can discuss both. If possible use the R2 reserve by reducing the TUs for “R17 other”. If the end result anyway would be a Small negative sum for the TU budget for some RAN2 meeting it could still work.  |
| Futurewei | In principle, we should not make other WIs suffer due to a WI failing to properly budget RAN2 workload.We suggest no action in RAN#92e, and to task RAN4 to converge on major issues and provide analysis of RAN2 impact to RAN#93e. Need of RAN2 TUs for this WI and if and how to obtain them can be discussed in RAN#93e.  |
| T-Mobile USA | We support adding the TU’s, however the TU’s should be allocated before new SID’s or WID’s are approved in Plenary i.e. NTN.  |
| OPPO | It seems not likely to drop this WI entirely. Meanwhile, RAN4 will be likely to converge on some major issues for this topic and RAN2 seems need to start the work in Q4.Our view is:* No harm to the current TUs allocated to WI in progress;
* Further judge in RAN#93 whether RAN2 can use the TUs allocated for R17 others (3.5 TUs in Q4 2021, RP-210824);
* Task RAN4 converge on controversial issues closely related to RAN2 so that RAN2 work can be concrete.
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| Qualcomm Incorporated | We can try to identify the RAN2 impact before dropping objectives from other WIs. This may become clearer in a quarter. |
| Intel | We can try to accommodate it within the RAN2 TUs and consider downscoping of WIs in general next plenary.  |
| MediaTek | It is unlikely to drop the MG WI entirely. But it also not so reasonable to down scope other WI for this particular reason.In general, we understand that almost all RAN4 WIs (and RAN1 WIs) have capability and configuration impact to RAN2. So, there is R17 other and Chairman spare TU to address this. Some feature (e.g. R16 UL TX switching) may request more online discussion to understand R1/R4 design and it has been handled properly in Rel-16. If the overall R2 impact due to R17 MG WI is small, there is no need to have immediate action now.For R17 MG WI, the requested R2 TU is highly depends whether R4 LS could clear indicate the required R2 change. It seems reasonable to ask R4 to have a clear suggestion on the R2 procedure (as normal practice, not sure RP guide is needed). Adding TU from R17 other is okay for us (as R17 other is somehow reserve for R1/R4 impact to R2). |
| Ericsson | First of all, it is important we all have a common view of the current TU budget in RAN2. For us the budget is found in RP-210925 which is the endorsed TU budget from RAN#91. In that budget there is a line for "TEI and other not planned issues" with 1-2 TUs per meeting. Is this the "R17 Other" mentioned by the RAN2 chairman?If the RAN2 chairman can find needed TUs for each item, then we are happy. To us, option b seems to have a significant risk of overloading RAN2 further, so we are hesitant to go in that direction.From an planning point of view, we think it is important to have explicitly allocated time for the WIs with RAN2 objectives. This both in order to plan the work in 3GPP but for companies to plan their staffing, etc. To have a "bucket" wherein several e.g. RAN1 objectives are hiding is not clear enough like we have now. For example, from the current TU-schedule (RP-210925) it is not clear to us when Coverage Enhancements or DSS start in RAN2. We hope that as an outcome of this plenary meeting the RAN2 TU plan would clearly state which items have TUs allocated when. |
| Samsung | We also agree the general principle that this WI should not give impact to other WIs, so perhaps the suggestion from MediaTek (i.e. by using ' TEI and other not planned issues' in RP-210925) is reasonable to us (assuming RAN4 provides very clear/specific action/guidance to RAN2 in the LS). |
| CATT | We agree with many companies comments that one item should not impact the others. From our point of view it is reasonable to consider the TU planning as a whole and see if the newly identified issues could be addressed by the available TU. In this case we’d agree with MediaTek and Samsung that perhaps we could check if it is already possible under the currently endorsed R2 TU.  |
| Nokia, Nokia Shanghai Bell | The default option would be in fact: "d) we do not progress this work in Rel-17". But the proposal from QC is a good one, though: We should understand roughly what is necessary to do and the onus on that should be with the rappporteur - we need realistic work plans!That said, we think there is very little room to move TUs around without reducing the scope of other WIs: Many of the existing items are already too large in scope and adding more will not help. On that point we agree with Futurewei. Note that even with downscoping, finalization of Rel-17 will be challenging and Rel-17 is likely to suffer from the long trail of CRs we have already experienced (and are still experiencing) with legacy NR releases. Instead of trying to yet again adding more work to an overloaded RAN2, we believe the focus should be on trying to reduce the work to restore the quality of the specifications 3GPP releases.Besides, alternative a) and b) might reduce the opportunities of TEI even further, which is not acceptable.Furthermore, we really shouldn't intentionally overload RAN2 with "negative TUs" - past has shown us that it doesn't work. And reducing "Other" will cause prioritization problems when other groups ask RAN2 input (which is already happening). |
| Huawei, HiSilicon | Similarly to many others, we also think that we should wait one more quarter to understand better the RAN2 situation, and surely we should not penalize other WIs by adding TUs for this one and taking way some form others. We thought that we can anyway use the TUs under “Others”. That was our default understanding. Then if there is any special case we can look at it (in September RAN). |
| vivo | No impact about other WI, we agree that TU in others can be used, however it is also better to have more understanding about the RAN2 impact after more time. |

**Comments to Comments:**

a) Measurement gap enhancements specific proposals are taken into account in the next chapter below.

b) RAN2 Chair Explanation on reserve TUs in RAN2: Due to the usage after last RP meeting of the joint RAN WGs TU sheet in RP-210925, the labeling of previously endorsed parts from the separate RAN2 TUs excel table was changed. The RAN2 “reserve” TUs are included in the separate line “R17 Other, 5G Bcast etc (including reserve)”, which has a nominal allocation of 1 TU per meeting and for the remaining Rel-17 Meetings its actual allocation is 1.5TU, 3.5TU, 4TU, 3.5TU.

**Initial Round discussion Summary:**

a) Majority of companies prefers to as far as possible not impact the TU allocation of ongoing items in order to make room for not yet allocated work, and as first option make use of RAN2 reserve TUs (currently under R17 other).

b) There is interest to do down-scoping in order to secure R17. As concrete proposals for down-scoping are indeed already progressed at current meeting, it is assumed that no action will be taken from this offline discussion to do further down-scoping at this meeting.

**Suggested next step:** Clarify better in a RAN2 update of joint TU sheet which TUs can/cannot be considered etc.

## Intermediate Round

The TU spreadsheet has been updated, and TUs has been moved from “R17 Other” to “reserve”, and also to measurement gap Enh according to proposal in next chapter. Can comment on Initial Round Discussion summary, and on the updated TU spreadsheet.

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| **Company** | **Comment** |
| RAN2 chairman | The Draft TU spreadsheet now explicitly shows the “reserve”. Please note that the “reserve” is indeed there, but it is nominal, and the actual situation is that e-Meetings provide less on-line time than f2f meetings and efficiency is less, and the reserve if not explicitly used will be socialistically used by other items for progress,  |
| vivo | We are ok with chairman’s updating. |
| Nokia, Nokia Shanghai Bell | We were wondering if the "reserve" should reflect the real e-meeting time as well, to fully allow visibility into real TU allocations. See also our later comments on "Other WIs". |
| RAN2 Chair Reply Comments | First, It has already been agreed that the planning baseline is a physical meeting, the planning parameter is “physical meeting TU” and such TU need to be scaled to be mapped to e-meeting. Second, the plan that 25-30% of the TUs (dep on how you count) are planned by the chair, has also been endorsed at RP. Third, the “reserve” should be the least interesting RP plannable item to have visibility into as this time is spread to other items. Please note that I have been somewhat hesitant to earlier show explicitly that there is a “reserve” as we in reality are quite short on time and any reserve we have will in any case likely be needed to cover already started work e.g. WIs led by other groups. E.g. I would not like to use it for RAN2 initiated TEI17. Please note that the TU unit isn’t a tool for millimeter justice, especially for items allocated small time, e.g. 0,5TU for a meeting, as at some meeting to resolve a deadlock, one single controversial issue can require 0.5TU.  |
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**Intermediate Round:** No Objections to the initial edits in the RAN2 TU allocation sheet v00. The reserve is now shown explicitly. There is no need to explicitly endorse any of the detailed comments in this section.

# RAN2 TU modification for specific WIs

## Measurement Gap Enhancements

### Initial Round

In [1], the Observation 1 states: RAN2 needs a non-negligible TU allocation for the measurement gap enhancements WI in Rel-17. Likely 2-3 Tus are needed in total spread between 2-3 RAN2 meetings.

Furthermore [1] states the expectation that RAN4 will provide LS and conclusions such that RAN2 work can start in 2021 Q4 (November meeting).

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| **Company** | **Comment** |
| RAN2 Chairman | I believe that indeed Measurement Gap Enhancement discussions in RAN2 might be controversial and associated with certain level of confusion, and 3 meetings should be expected, and RAN4 Should really conclude such that RAN2 can start work in November. On the exact TU allocation, IMHO the need would depend on to what extent RAN4 can/cannot converge on mechanisms. If several major mechanism decisions are left open to RAN2 there is indeed a risk that significant discussion is required.It may be feasible to allocate 0.5 Tus for 3 consecutive meetings starting Nov, without impacting TU allocation for other items. If needed additional CB time can be used.  |
| Futurewei | The priority should be given to properly complete those Wis already with committed RAN2 Tus.0.5 Tus for 3 meetings starting from Nov. may be considered. The decision should be made in RAN#93, pending on RAN4 progress.  |
| OPPO | We also think the principle should avoid jeopardizing Tus already allocated to Wis in progress. It would be good to see the progress in RAN4 in August, it would be even better to task RAN4 to converge on controversial issues which is closely related to RAN2. |
| Qualcomm Incorporated | Agree to Futurewei’s comment “0.5 Tus for 3 meetings starting from Nov. may be considered.”To us, the WI objectives require new RRC configurations and almost no procedural impact.For objective (1), it should be noted that it is already clear in the current RAN2 specifications in what conditions the UE requires measurement gap for SSB based measurements. It is based on whether the measured SSB is intra-frequency/inter-frequency, is within the active BWP, what the UE reports in RRC Reconfiguration Complete, and combination of reported UE capabilities. Essentially the network knows if the UE requires measurement gap for each BWP when it becomes the active BWP. It is today’s network ehavior to configure measurement gap when the UE requires measurement gap in at least one active BWP. Only addition is to a flag for dynamic on/off.The objectives (2) and (3) are to purely add RRC configurations. |
| Intel  | We agree with RAN2 chair’s suggestion to consider 0.5 Tus for 3 meetings starting Nov.  Depending on RAN4 progress, this can be revisited in next plenary.   |
| MediaTek | Based on the progress on MG WI so far, we think “adding 0.5 Tus for 3 meetings starting from Nov without impact other WI” is a reasonable approach. We can also confirm this in next RP meeting.  |
| Ericsson | We agree with the RAN2 chairman that it would be good if RAN2 discusses this topic in 3 meetings. RAN4 is likely to send an LS to RAN2 in the August meeting meaning that RAN2 can start the work in November. As to the amount of Tus in each meeting, 0.5 Tus is perhaps sufficient. Less than that would probably not be meaningful.As indicated above, to take comeback time and use it for Wis is questionable in our view. The comeback time is commonly shared among all other Wis and using for e.g. the measurement gaps WI would remove precious time from the other Wis and hence limit the progress for those. |
| Samsung | We agree with RAN2 chairman’s suggestion. |
| CATT | We agree with R2 chair’s suggestion.  |
| Nokia, Nokia Shanghai Bell | The scope of the work should be very clear: For these kinds of topics, several meetings are needed to finalize, especially if LSs between WGs are needed. Ideally, RAN2 should start the work immediately in August to have any chance of completing it in Rel-17, but likely it is only possible in November given that RAN4 hasn't progressed sufficiently to inform RAN2 of the status yet. Looking at the objectives, we note the following:* Scope: There are 3 separate gap pattern objectives, each of which may require slightly different procedures. RAN2/4 will also have to discuss which gaps can be configured simultaneously, and how they co-exist if that is allowed. --> 1-2 meetings, with 1-2 TUs (i.e. 0.5-1 TU / meeting)
* Activation/deactivation: Currently gaps are always active when configured. Changing that paradigm requires careful checking of both UP and CP aspects (e.g. what if gap is released while active? How many can be configured? --> 1-3 meetings, with 1-2 TUs (i.e. 0.5-1 TU / meeting)
* Multiple gap patterns: In addition to basics of this (MAC currently assumes one MG), overlap of gap patterns needs to be discussed (i.e. can gap1 and gap2 overlap?). --> 1-3 meetings, with 1-2 TUs (i.e. 0.5-1 TU / meeting)
* MAC and BWPs: There is gap pattern activation based on BWP switching. This requires checking both MAC impacts as well as RRC configuration aspects --> 1-2 meetings, with 0.5-1 TUs (i.e. 0.25-0.5 TU / meeting)
* UE capabilities and ASN.1: As usual, these discussions will require some time in RAN2 to finalize everything. --> 1-2 meetings, with 1-2 TUs (i.e. 0.5-1 TU / meeting)

Of course some of these can be done in parallel, but considering that the work can likely only start in November RAN2, 1-2 TUs / meeting seem required as RAN2 needs to start ASN.1 review after February meeting. |
| Huawei, HiSilicon | This one that we are debating is an unfortunate situation that in general should not happen. We should not penalize any WIs already with agreed RAN2 TUs.The addition of 0.5 TUs for 3 meetings starting from Nov. may be considered if the work cannot be accommodated under the existing items (Others and similar). The decision should be made in RAN#93, so that we will have a better clue, based also on RAN4 progress. |
| vivo | Additional 0.5 TUs for 3 meeting seems reasonable. |

**Initial Round Discussion Summary:** It seems that the proposal to allocate 0.5 TU x 3 meetings from Nov in RAN2 is agreeable. There are several comments to wait until RP-93 but also comments that regardless, this WI will likely have some RAN2 impact.

RAN2 chairman: Prefer to have some time allocated, as it seems there will be work in RAN2 and this item has now been ongoing for a while in RAN4.

**Initial Round Moderator Conclusion:** For Measurement Gap Enhancement add 0.5 TU per meeting from Nov in RAN2. Revisit in RP 93, correlate with actual progress in RAN4, and take action then if needed.

### Intermediate Round

Can comment on Initial Round Discussion summary and moderator conclusion.

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| **Company** | **Comment** |
| vivo | We are ok with TU allocation now because RAN2 has to do some work anyway based on our observation. Of course, we are also ok to discuss it next RAN plenary meeting. |
| Ericsson | We are fine with the allocation and are happy to see it got an explicit row in the the TU-planning excel sheet. |
| Huawei, HiSilicon | We didn't think we need to do this operation at this meeting, as explained before. We prefer to come back on this (and other RAN2 TUs adjustments) in RAN#93. |
| Nokia, Nokia Shanghai Bell | Fine with this for now, but we would propose to check how the progress has been in RAN#93e (for RAN4) and RAN#94e (for both RAN2 and RAN4) to see how feasible the WI scope seems for Rel-17 completion. Then we can make more informed decision about final Rel-17 content. This helps to ensure RAN2 TUs are spent efficiently. |
| Futurewei | As the 0.5 RAN2 TU allocation from Nov. does not affect RAN2 Q3 work, if we’d want to agree it now (instead of RAN#93e), the reservation should serve as the indication of RAN2’s bandwidth on this WI. This should be taken into account in RAN4’s Q3 efforts of converging on major issues. As such, the 2nd sentence “Revisit in RP93 …” can be removed.  |
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**Intermediate Round Discussion:**

Moderator agrees with the comment that initial round conclusion was somewhat incorrectly phrased, and that revisit of scope feasibility TU allocation for this WI at a future RP meeting will be based on company input rather than action point from this discussion.

**Intermediate Round Moderator Conclusion:** For Measurement Gap Enhancement 0.5 TUs per meeting is added from Nov in RAN2 TU allocation.

## Other WIs

### Initial Round

Moderator proposes to not discuss in the initial Round potential TU impact for WIs for which there are dedicated Offline discussions. Could bring all RAN2 TU impacts into this discussion e.g. for final round (TBD)

Moderator invites for comments on aspects or WI possibly otherwise missed:

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| **Company** | **Comment** |
| Nokia, Nokia Shanghai Bell | The FeMIMO discussion in [92-e-08] may have RAN2 TU impacts (depending on what is decided). |
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### Intermediate Round

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| **Company** | **Comment** |
| RAN2 Chairman | **RACH indication** – This will be a separate AI in RAN2 from Q3, with the purpose to specify functions common to several WIs. It will initially be allocated the equivalent of 0.5-1 TU, taken from the common Pool of Chairman-mgmt time (not allocated by RP). It seems the following proposals are on the table for increased/explicit RAN2 TU allocation: **feMIMO** – If RAN2 mobility enhancement remain in scope and RP cannot converge to a more detailed description of RAN2 scope, it will be urgent to clarify in RAN2 the RAN2 scope, and TUs in Q3 should be increased with 0.5 TU (all remaining reserve for Q3), and subsequently at least 0.5 TU per meeting. Note that even with high number of TUs, the number of remaining meetings in R17 it not sufficient for the combination of an ambitious and unclear scope in RAN2 for mobility enhancements. **Coverage Enh** – RACH indication aspects of this item can start. Other aspects can also start – TUs are currently part of item “R1 other”. From the initial round of the WI specific discussion it seems companies prefer R2 work to just start.**DSS** – It was commented in the initial phase by Ericsson that this item should start in RAN2. TUs currently part of “R1 other”. Chair assumption that the work in RAN2 should be triggered by R1 LS, but this can be discussed, alternatively we could just invite for tdocs in R2.  |
| vivo | **RACH indication**–we agree with chair that separate AI is helpful, TU can be flexible allocation by RAN2 chair. **feMIMO** –we also think that we do not need to increase TU, we should discuss how to down scoping RAN2 impact also. **Coverage Enh** –we support RAN2 starts it from next RAN2 meeting. **DSS** –we also think that LS driven is better for RAN2 work. LS should give clear guidance about RAN2 work.  |
| Ericsson | **UDC** - It has been agreed to use 0.5 TU for UDC in the last meeting of 117. See RP-210909 (which was approved in RAN#91).**DSS and Coverage enhancements** - We think we should separate out TUs explicitly for these WIs. Not only would it make it clear how many TUs are allocated for each of those two WIs, but it would make it clear when they start. We assume we should simply take the 1 TU for "*Misc R1 items (Cov Enh, DSS sched enh etc)*" and give 0.5 TUs to DSS and CovEnh from Aug onwards. |
| Huawei, HiSilicon | **RACH indication**– no problem to have a separate Agenda Item in RAN2 if that helps, but not sure about allocating extra TUs. Our initial preference would be no. **feMIMO** – We think that we should not increase TUs, but rather focus the RAN2 work on some scenarios only (as discussed in another email thread).**Coverage Enh** – TUs should be kept as “R1 other”. **DSS** – TUs should be kept as “R1 other”. We can keep track on which items go under this R1 other (although this is already visible in the excel sheet). To not have a fixed 0.5 TUs allocation for any of those will help, as it is more flexible. We can adapt better to the flow from RAN1. We have seen in the past already some 0.5 TUs allocation being voided in practice in the meetings.  |
| Nokia, Nokia Shanghai Bell | **RAN1/RAN4 WIs:** We agree with Ericsson that it's best to separate allocations for separate WIs. This holds for all items, especially if multiple meetings are needed to complete the work. That will also reduce the chairman's flexibility, but makes the allocations far more visible. The chair can still determine how to handle these topics flexibly depending on the need (and these allocations can be changed if there is need).**FeMIMO:** With the current TUs, it's may not be possible to complete even the so-called "scenario 1": RAN2 used ~1 TU for this topic ion April meeting, and 2 TUs in May meeting (all coming from the chairman's discretionary TU budget). And this was only intended for replying to LS from RAN1. **RACH indication:** Note that this topic spans multiple WIs and is additional to the work done in those. Therefore, it would be good to have the separate AI for this and indicate how much time is expected to be spent with it. |
| Futurewei | We think a RAN2 AI of **RACH indication** is helpful, as it can be handled using the chairman’s management time.We should first try not to increase TU for **FeMIMO**, by clarifying and downscoping RAN2 scope.For other items, they can be kept in“R1 other” until RAN2 impact (other than nominal signaling support) is more clear. |
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**Intermediate Round Moderator conclusions and way forward suggestions**

**RACH indication** – Confirm the following: separate AI in RAN2 from Q3, with the purpose to specify functions common to several WIs. will initially be allocated the equivalent of 0.5-1 TU, taken from the common Pool of Chairman-mgmt time (not allocated by RP). Not visible in TU allocation.

**feMIMO** – Agree with Nokia that likely this is under-allocated even with the current scope change. Scope is not overwhelming, but controversy level seems very high. Prefer to not change TU allocation now, but can consider at next RP if it seems clearly needed.

**Coverage Enh** – Will be treated from next R2 meeting (acc to the other discussions), Will follow the proposal to move 0.5 TUs per meeting from R1 other to separate row. Note that 0.5 TUs seems not 100% fair, as the need for discussion is likely less than feMIMO, and less then IoT NTN, and indeed real time allocation in R2 will be calibrated a bit also by the need. It seems however ridiculous that RP shall mirco-manage down to units < 0.5 TU.

**DSS** – Expected to be treated from November meeting, if LS from R1 is received by R2 then. It is not clear to what extent this will need on-line time in RAN2. Suggest to keep this in “R1 Other” for the time being. Added a comment that this is expected to start in R2 in Nov.

**UDC** – This was accidently omitted from the TU sheet, Now is added to R2 116bis (January 22)

**See TU spreadsheet v01**

### 4.2.4 Final Round

Any further comments

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# References

[1] RP-211256 RAN2 TUs for measurement gaps enhancements Ericsson