[98e-12-RAN4-Irregular-BWs] - Version 0.0.3

RAN

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3GPP TSG RAN#98e draft [RP-223452]

Electronic Meeting, Dec. 12 - 16, 2022

Agenda Item 9.2.4

Source: RAN Vice-Chair (Deutsche Telekom)

Title: Moderator's summary for discussion [98e-12-RAN4-Irregular-BWs]

Document for: Discussion & Decision

Objective:

This NWM thread discusses the content and proposal of:

- **RP-223195** (Apple)

The SR of this RAN4 SI is provided in **RP-223273** and should be taken into account during this discussion.

The aim of this thread is to decide, if RAN#98e tasks RAN4 to continue the work to target finalisation in March 2023 as planned.

Timeline:

According to the RAN chair's guidance in max. 3 rounds

1 Initial Round

1 1.1 Discussion of proposals in RP-223195

For the initial round I open for necessary comments on all three proposals:

Although it is absolutely clear that all discussion in 3GPP should only focus on technical topics, I open this proposal for comments:

Proposal 1: To complete the SI by March 2023, we ask TSG RAN guidance to focus technical discussions on finalising the SI.

Feedback Form 1: Comments to P1

1 – Deutsche Telekom AG

[as Deutsche Telekom] We do not think that special guidance on this aspect needs to be given by RAN to RAN4. It is clear anyway that the discussions in 3GPP and especially in the WGs should only be of technical nature. It is the responsibility of the person chairing the session to stop any non-technical discussions.

2 – Nokia France

We are not clear what guidance is suggested. We agree with Deutsche Telekom's comments above.

3 – Ericsson LM

We also do not see the need for any guidance. RAN4 task is quite clear and agenda item is well defined.

4 – MediaTek Inc.

This can be discussed in March 2023 pending on the progress.

5 – T-Mobile USA Inc.

We think the issue is that RAN#96 and RAN#97 tasked RAN4 to clarify key open issues before progressing further on solutions. Form the RAN96 report: "conclusion: RAN4 is encouraged to focus the discussion about this SI in Aug.22 on SIB1 issue." From RAN#897: "- Discussion on irregular channel methods will resume when all core open issues are clarified." There are still issues that RAN4 has not been able to reach consensus on. Rather than continue to debate the open issues in the current spec, we think it would be helpful if RAN amended the guidance to RAN4 to allow for completion of the SI in March. Maybe an alternative proposal 1:

Proposal 1: RAN withdraws guidance to RAN4 to solve open legacy issues before proceeding with solutions.

6 – T-Mobile USA Inc.

"From" not "Form"

7 – China Telecom Corporation Ltd.

We agree with T-Mobile's comment. Given the previous RAN plenary guidance, RAN4 focused on the SIB1 and raster related issues in the past two quarters.

We support to resume the discussion on irregular channel methods in Q1 2023 in order to conclude the SI.

8 – Verizon UK Ltd

We also believe this work is quite clear and the work plan is well defined. The T-Mobile proposal 1 is good for us too, and RAN4 can use it for self guidance on this work.

9 – Samsung Electronics Co.

Echo comments from other companies. No further guidance needed from this RAN-P for this SI, RAN4 can continue the effort to conclude this SI in March 2023 as planned. Meanwhile given the progress on this SI, RAN4 leadership can consider to prioritize this SI in February RAN4#106 meeting.

10 – QUALCOMM JAPAN LLC.

This is business as usual, we should just continue the SI. There is no need for any further guidance. Unfortunately, this SI seems to have become a study on Rel.15 maintenance.

11 – ZTE Corporation.

Similar comments as companies, we could continue the discussion in RAN4 and there is no need for further guidance.

12 – Huawei Technologies France

The SI is already agreed to extend to March 2023 in current SID. In general it is not clear what RAN guidance is needed for SI. It could be discussed in the 2023 Q1 RAN4 meeting and further RAN guidance can be done at RAN#99. After long discussion without progress, we feel there is no need to have further down selection of the options which can be utilized to support irregular CBW. The following work should be focused on the channel raster issue based on WF in last RAN4 meeting

13 – China Mobile Com. Corporation

Agree with other companies, RAN4 continue to work on the SI. No RAN guidance is needed.

14 – Apple GmbH

@**all**: Most companies agree that we should continue working on the SI. However, as explained in comments from T-Mobile, does it mean that we ”continue clarifying open issues for SIB1” or ”we continue discussing methods for irregular channels”? Depending on which way we go, the agenda items for the next meeting will be different.

15 – Apple GmbH

@**all**: As an additional comment, the SI status report indicates that the SI progress is behind the schedule and thus RAN intervention is needed.

16 – Intel Corporation (UK) Ltd

It is not totally clear to us what sort of guidance is proposed to be given by TSG RAN that will help to complete the study item by the completion date of March 2023.

17 – AT&T GNS Belgium SPRL

We do not think that any additional RAN guidance is required. We can check the status of the SI in March.

The next two Proposals (2a/b) to go along together - comments are invited on both seperately in the inital round:

Proposal 2a: UE behaviour with potential Rel-18 channel raster enhancements can be further contemplated under the SI scope (with the potential outcome as TP to the SI).

Feedback Form 2: Questions and comments to P2a

1 – Nokia France

This is business as usual. (Presumably ”SI” should actually read ”TR”.)

2 – Ericsson LM

This is already ongoing. Agree with Nokia that any agreement in terms of TP/pCR will be captured in the SI TR. No specific agreement or no guidance is needed.

3 – MediaTek Inc.

During the previous RAN4 meetings, the need of potential Rel-18 channel raster enhancements becomes more and more clear, and focus on this discussion would be more constructive, given the situation that it is very difficult to have an aligned common understanding on the essential issues identified in this SI (e.g., both SIB1 and UE CBW alignment to channel raster).

4 – T-Mobile USA Inc.

Given the previous guidance from RAN to RAN4, it would be useful for RAN to allow RAN4 to work 2a and 2b in parallel, rather than agreeing on legacy behavior before contemplating new behavior.

5 – China Telecom Corporation Ltd.

Agree with option 2a. Given the difficult situation in RAN4 in the last two quarters, we think we have to discuss the Rel-15 and Rel-18 UE behaviors in parallel. Otherwise, we see a risk of not being able to finish the SI and the follow-up WI in Rel-18.

6 – Verizon UK Ltd

We support both Proposal 2a and 2b. RAN4, and RAN4 should provide both solutions following the work item required.

7 – ZTE Corporation.

Similar comments as Ericsson and Nokia, this is business as usual and we don’t see the necessity of RAN intervention.

8 – Samsung Electronics Co.

This is busines as usual, RAN4 can continue the work till 2023 March as planned. The final conclusion can be captured into the TR. Not sure what’s the exact guidance needed at current moment. Similar view as ZTE□ Ericsson and Nokia.

9 – Huawei Technologies France

According to the WF in last RAN4 meeting, “at least for Rel-18, it is possible to consider further enhancements that the UE specific channel bandwidth and BWPs of FR1 low-frequency bands can be on non-100kHz raster”. As a remaining issue, it could be further discussed/clarified to address the deployment issue identified by operator. Though the issue could be discussed under the SI, but we think the issue itself is not a new one for Rel-18. In that sense, the solution to specific band, e.g. n28, should also consider the legacy releases.

10 – China Mobile Com. Corporation

Agree with other companies, no RAN guidance or agreement is needed.

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11 – Intel Corporation (UK) Ltd

Commenting to proposal 2a and 2b, we think it makes sense for the technical issue regarding the 100kHz raster to be addressed by a single discussion in RAN4. To discuss clarifications/corrections to legacy releases, potential clarifications/corrections/enhancements to Rel-18, and potential impacts to the Irregular BW study under different discussion tracks will only complicate an already challenging discussion. Having made this comment, we feel that is not necessary for RAN plenary to micromanage such RAN4 meeting arrangements – instead we can leave these aspects to the RAN4 chair.

As part of the question if and how to introduce a new Rel-18 channel raster enhancement the impact on UE behaviour of UEs from legacy releases should be considered

Proposal 2b: UE behaviour from legacy releases can be further discussed in the ”maintenance track” (with the potential outcome as CRs to the legacy releases).

Feedback Form 3: Questions and comments to P2b

1 – Nokia France

The legacy UE behaviour needs to be continued in the same SI as the Rel-18 enhancements, since the understanding of legacy behaviour and potential Rel-18 enhancements are intimately connected.

Regarding the moderator’s suggestion below that an LS should be sent to RAN4, we are not sure why an LS is necessary. The existing SI was already extended for 6 months from RAN#97.

2 – Ericsson LM

The work is ongoing under the SI and it should continue as it is now covering legacy as well as R18. We do not see any need to change the current approach nor there is any need to send the LS to RAN4.

3 – MediaTek Inc.

Rel-18 enhancement or ”maintenance track” can be left at RAN4 leadership’s discretion, and we can discuss again in Mar 2023 to see if RAN plenary guidance is needed or not pending on the progress.

4 – T-Mobile USA Inc.

Given the previous guidance from RAN to RAN4, it would be useful for RAN to allow RAN4 to work 2a and 2b in parallel, rather than agreeing on legacy behavior before contemplating new behavior.

5 – China Telecom Corporation Ltd.

We agree with T-Mobile’s comment. Given the previous RAN plenary guidance, RAN4 focused on the SIB1 and raster related issues in the past two quarters.

We support to resume the discussion on irregular channel methods in Q1 2023 in order to conclude the SI.

6 – China Telecom Corporation Ltd.

Sorry that our previous comment (comment #5) should be to the Proposal 1.

Our comment to Proposal 2b is as follows:

Rel-15 and Rel-18 UE behaviors can be discussed in parallel, and both can be discussed in this SI to ensure more efficient discussion.

7 – Verizon UK Ltd

We support both Proposal 2a and 2b. RAN4, and RAN4 should provide both solutions following the work item required.

8 – Samsung Electronics Co.

Both legacy UE and new UE behavior shall be discussed in this SI and final conclusion can be captured into TR. Again this is SI, we don't expect any modifications to specifications during study item phase. Once we convert SI to WI, we can have CRs for both legacy release and Rel-18 or if needed other solutions for legacy release CRs pending on RAN4 chair guidance once we have conclusion on this SI. Regarding LS to RAN4, we share same understanding from Nokia, LS not necessary. This discussion can be proceeded in RAN4 as business as usual. We can wait for the conclusion for this SI to see how to proceed future work.

9 – QUALCOMM JAPAN LLC.

Thus seems to be business as usual, anyone can bring a contribution with any maintenance problem. We do not see the need for any LS

10 – ZTE Corporation.

we also don't see the necessity to send the LS to RAN4/2 and RAN4 could continue the discussion in Q1,2023 as planned in the previous RAN-P meeting.

11 – Huawei Technologies France

We think the issue for specific band, especially for the encountered deployment problem, should be addressed under maintenance agenda, i.e. maintenance CR for UE spec.

12 – China Mobile Com. Corporation

If problems are found in legacy system, companies of course can bring contribution in the maintenance agenda. This is business as usual.

13 – Intel Corporation (UK) Ltd

Please see comment in feedback from 2.

The discussion should result into a LS from RAN#98e to RAN4 (cc RAN2) based on the final decision we will take.

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A volunteer for drafting a related LS is appreciated (please contact me as the moderator offline during the phase of the inital discussion phase, please.

1 1.2 Summary of the Initital Round

15 companies answered question 1 if further guidance from RAN to RAN4 is needed. The overwhelming majority did not see any need for further guidance (also not clear what guidance this should be) and concluded that RAN4 should continue targetting to complete this SI in March 2023.

As moderator I suggest to document this in the RAN#98e report and let RAN4 proceed to conclude the SI in March 2023.

A similar number of companies expressed their view on Q 2a & 2b. The majority of companies suggested that the two topics should be discussed in parallel until the SI finalisation. The organisation is considered ”business as usual” and left for the RAN4 leadership to organise. Also many companies indicated that there is no need for a dedicated LS from RAN to RAN4. A low number of companies suggested to explicitly wirthdraw the previous RAN guidance.

As moderator this looks to me like”micro-management” where RAN does not need to be involved. I suggest to document in the RAN#98e report that the aspects of 2a (new) and 2b (legacy) should be discussed in parallel and let RAN4 proceed to conclude the SI in March 2023.

I will open an intermediate round of discussion to see if these two proposals are acceptable:

2 Intermediate Round

Please indicate ONLY your disagreement with the two proposals of the moderator from the initial round.

CLEARLY indicate why and provide a reasonable proposal on a different way forward if really necessary (and not repeat saying just the same ...) (-> I will not count support/no support in this phase of discussion)

Feedback Form 4: Only indicate of the moderators proposal are NOT acceptable

1 – Nokia France

Thank you for moderating this discussion.

One important clarification on ”should be discussed in parallel”: while the legacy and enhancement aspects may to a certain extent be discussed in parallel, it will not be possible to *conclude* the enhancement discussions before consensus is reached on the legacy behaviour, since the legacy expectations of what must be on the 100kHz raster must be understood in order to know how the signalling needs to be enhanced. Nevertheless, this is business as usual and the SI should continue in RAN4.

2 – Apple GmbH

We agree with the moderator proposal. We would like to clarify further whether parallel discussions for the legacy devices and potential enhancements will be conducted under the same SI or not.

3 – QUALCOMM JAPAN LLC.

Proposal 2b needs to be clarified. These enhancements should be discussed only related to enabling the use of irregular channel BW, RAN4 should not discuss general enhancements under this SI. A separate SI/WI would be needed for that.

4 – T-Mobile USA Inc.

It seems like Qualcomm is saying that we can only discuss the 100 kHz raster issue as it relates to irregular channel bandwidths, and we can no longer discuss the more general issue of how BWPs/UE specific channel bandwidths are broken if UE specific channel BWs need to be centered on the 100 kHz raster and how that makes many combinations of SIB1 and UE specific channel bandwidths incompatible because of the even/odd PRB issue. Since we have already discussed this issue since August under this SI, we should be able to continue to discuss how to handle that situation in Rel-18 in this SI, although normative work could either be in a new WI or via TEI.

5 – China Mobile Com. Corporation

We agree with moderator proposal. The reason we discuss proposal 2b in this SI is that when we discuss the potential enhancement in this SI, it is observed that companies have different understanding even on the legacy specs. If we do not have common understanding on what is the baseline assumption, it is difficult to discuss how to do the enhancement. For the legacy issue, since RAN4 already discussed this as commented by T-Mobile, the discusison should be continued either in this SI or in TEI depending on RAN4 chair's management.

6 – Ericsson LM

We agree with T-Mobile and CMCC that RAN4 should continue discussing all the issues including the legacy issues under the SI. In other words RAN4 should continue working on SIB1 and UE specific channel bandwidths compatibility issues as it has been doing it since Q2/2022. Any changes in R15 will be TEI since the new WI cannot be R15.

7 – Ericsson LM

We agree with T-Mobile and CMCC that RAN4 should continue discussing all the issues including the legacy issues under the SI. In other words RAN4 should continue working on SIB1 and UE specific channel bandwidths compatibility issues as it has been doing it since Q2/2022. Any changes in R15 will be TEI since the new WI cannot be R15.

8 – Huawei Technologies France

We agree with the moderator proposal. Parallel discussion including legacy issues could be further discussed in RAN4. Though the fundamental issue for channel raster has not been fully solved, it could be discussed under the SI, but the solution for legacy issue should be provided by CR for early releases.

9 – MediaTek Inc.

We are fine with Moderator's proposal. One more thing on Proposal (2b) is that in case there may be some consensus achieved on the legacy behavior, the corresponding maintenance CR may not be handled in this SI since an SI is not expected to generate maintenance CRs, which actually already caused some confusion in previous RAN4 meetings.

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10 – AT&T GNS Belgium SPRL

We are OK with the moderator proposal and agree with the clarifications from T-Mobile and CMCC. The legacy issues should continue discussion under this SI for now and under TEI if needed. It is clear that RAN4 needs to resolve the legacy issues so that the specification is clear.

11 – China Telecom Corporation Ltd.

We support the moderator proposal. For SIB1 and channel raster related issues, we think both Rel-15 and Rel-18 UE behaviors can be discussed in parallel and under this SI. But the current proposal from moderator is good enough as a RAN plenary guidance, and further details is up to RAN4 leadership arrangement.

12 – Intel Corporation (UK) Ltd

If 'should be discussed in parallel' means that both legacy behaviour and new enhancements should be progressed in Q1 2023, then we can agree the proposal. However, as noted by others, we think it will likely be necessary to reach some common understanding on the legacy behaviour (even if this common understanding is that different interpretations and implementations exist) before concluding on the need for enhancements. We think it can all be discussed under the SI - but we leave these arrangements to the RAN4 leadership to decide. The eventual WI code to be used on any CRs (e.g. TEIxx) is a separate topic from the arrangements on where within the agenda and meeting schedule the discussion happens (obviously the SI code cannot be used on CRs).

2.1 Summary of the Intermediate Round

The discssion in te Intermediate Round was mainly supporting the moderators proposal but wanted to enhance the wording esepcially on the meaning of "in parallel" and what aspects and when.

I suggest to document in the RAN#98e report that:

- **let RAN4 proceed to conclude the SI in March 2023.**
- **aspects of 2a (new) and 2b (legacy) should be discussed in parallel in 1Q2023**
- **Aspects of 2b might be prerequiste to find final agreement on 2a aspects**
- **The discussion in RAN4 should solely concentrate on the 100 kHz raster issue only as it relates to irregular channel bandwidths**

The excact handing is part of the normal process in a WG

With this I think as a moderator, that the discussion can be concluded and I will prepare the report document and ask the Chair to close this thread.