

final
Variant of [98e-21-R18-MUSIM] Version 0.0.2
RAN

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3GPP TSG-RAN WG Meeting #98 Electronic RP-223461

Electronic meeting, December, 12 – 16, 2022

Agenda item: 9.3.2.3

Source: vivo

Title: Moderator's summary for discussion [98e-21-R18-MUSIM]

Document for: Discussion and Decision

1 Introduction

This contribution is summary for discussion [98e-21-R18-MUSIM], The discussed issues are based on contribution RP-223105 and RP-223106.

RP-223105 Discussion on R18 MUSIM WID vivo

RP-223106 Revised WID R18 MUSIM vivo

2 Initial round

2.1 TU relocation requirement

There is not RAN2 TU in Feb, it is hard for RAN2 to get the achievement whether the WI will have RAN4 and RAN3 impact for UE capability restriction topic if there is no online RAN2 discussion, i.e. only by email discussion.

**Feedback Form 1: Q1: Do you agree to move 0.5 RAN2 TU
from Apr. 2023 to Feb. 2023?**

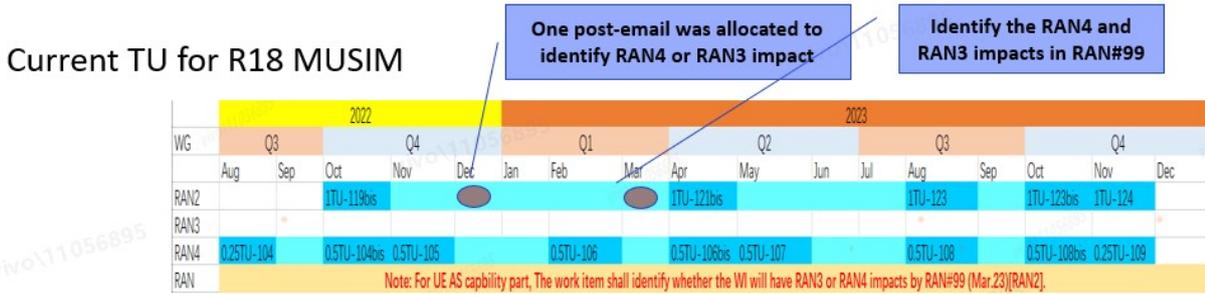


Figure 1: Existing TU allocation

1 – Xiaomi Communications

We are neutral to this proposal. We think that moving 0.5 RAN2 TU from Apr. 2023 to Feb. 2023 could be helpful if the TU shifting is manageable considering the overall RAN2 TU allocation in both Apr. and Feb of 2023.

2 – Ericsson LM

We are fine with this proposal

3 – QUALCOMM JAPAN LLC.

Support

4 – vivo Mobile Communication Co.

Thanks, as rapporteur, I think that it is really needed.

5 – MediaTek Inc.

Yes. We think it is reasonable.

6 – LG Electronics France

We support

7 – Samsung Electronics Co.

Yes, we support the proposal from the rapporteur.

8 – Nokia Corporation

We support the proposal

9 – NEC Corporation

Agree.

10 – Intel K.K. Support
11 – HUAWEI TECHNOLOGIES Co. Ltd. Yes, we agree. We support the proposal
12 – VODAFONE Group Plc yes, we agree
13 – China Telecommunications Support, we think it is needed to infentify RAN3 and RAN4 impact clearly
14 – ZTE Corporation We don't see the urgency but we are open to move 0.5 RAN2 TU from Apr 2023 to Feb 2023, if RAN2 has spare TUs left (the TU update shall not impact the TU allocation for other WI/SI) . If we move 0.5 TU to Apr 2023, then the agenda should be more focused to fit the 0.5TU and the TDoc limitation should be 1 for each meeting.
15 – OPPO We are open for this, if agreed, the agenda should be well organized in Feb meeting.

2.2 Clarify the R17 MUSIM gap supporting in R18 MUSIM

MN-SN coordination for R17 MUSIM gap is left to NW implementation in R17 phase. There are some interest among companies to specify MN-SN coordination for R17 MUSIM gap in R18 WI since this can save more SN resources. The agreement on R17 MUSIM gap coordination for MR-DC case in RAN2 #119 bis

- RAN2 can discuss NW A MN-SN coordination of Rel-18 MUSIM temporary capability restrictions due to UE being configured with NR-DC in NW A.
- RAN2 thinks MN-SN coordination for Rel-17 MUSIM gaps requires WI clarification in RAN

Feedback Form 2: Q2: Do you agree to specify MN-SN coordination of R17 MUSIM gaps with NR-DC in Rel-18?

1 – Xiaomi Communications Yes. We are fine with this proposal
2 – Ericsson LM We are fine with this proposal

<p>3 – QUALCOMM JAPAN LLC.</p> <p>Support</p>
<p>4 – vivo Mobile Communication Co.</p> <p>We support it.</p>
<p>5 – MediaTek Inc.</p> <p>Acceptable to us.</p>
<p>6 – LG Electronics France</p> <p>We are fine with the proposal. Does this require both RAN2 and RAN3?</p>
<p>7 – Samsung Electronics Co.</p> <p>Yes, the proposal would have marginal impact to the specification (i.e., only in the inter-node message) while adding a valid use case for the WI.</p>
<p>8 – CATT</p> <p>ok</p>
<p>9 – Nokia Corporation</p> <p>We agree this could be specified and assume it would be done via RRC inter-node messages (to avoid impacts to RAN3).</p>
<p>10 – NEC Corporation</p> <p>We support this proposal.</p>
<p>11 – Intel K.K.</p> <p>We are fine to add this. But considering this is enhancement on top of Rel-17 MUSIM gap feature, we would prefer adding it as a separate objective to the WID rather than putting it as a NOTE under existing objective.</p>
<p>12 – HUAWEI TECHNOLOGIES Co. Ltd.</p> <p>No, we think it's not good to extend the scope at this stage and prefer to focus on the objective of specifying temporary UE capability restriction/removal of restriction.</p>
<p>13 – China Telecommunications</p> <p>Yes, this feature involves RAN3 impacts. That is why we say "Support" in Q1</p>

14 – ZTE Corporation

We are ok to include this in Rel-18. As Nokia, we think this can be discussed in RAN2 without RAN3 involvement: currently all gap coordination parameters are defined in INM instead of Xn-AP. So unless RAN2 specifies new mechanism which requires Xn interface, it is better to limit the discussion in RAN2 (and LSs can be avoided).

15 – VODAFONE Group Plc

we are ok to include, however wonder on the TU allocation with increase tasks.

16 – OPPO

We don't want to extend the scope at this stage, if this propose is agreed, it's not acceptable to add extra TU for this new objective, i.e. TU allocation for R18 MUSIM WID should be kept as it is. Even to add this new objective, we think only per UE MUSIM gap should be considered, per FR MUSIM gap should be avoided considering the limited TU budget.

2.3 On network B requirement

At [RP-220955] there is one sub-objective as below:

The following MUSIM gap requirements are considered

- Measurements in Network A
- Measurements in Network B in RRC idle/inactive
- Note: it is up to RAN4 decision whether to define requirements for Network B.

Network B requirements have been discussed for three meetings however there is no consensus on whether to define NW B requirements or not

Feedback Form 3: Q3: Do you Agree to Suggest to remove NW B requirements in R18 or move it to R19 ?

1 – Ericsson LM

We do NOT agree to remove NW B requirements in R18. RAN4 should define at least some basic requirements for NW B measurements in RRC idle/inactive state

2 – Xiaomi Communications

It is too early to remove the NW B requirements. We think that this can be left to RAN4 WG discussion, as already indicated in the WID.

3 – QUALCOMM JAPAN LLC.

We support removing NW B requirements from the R18 work, and avoiding consuming more RAN4 time

going forward. We do not think it is appropriate to agree on R19 work scope now, so do not agree to "move it to R19" part.

4 – vivo Mobile Communication Co.

We support to remove it from R18 now.

5 – Apple GmbH

RAN4 requirements for NW B shall be with lower priority. Therefore, we are fine to remove it from R18. If NW B requirements have to be introduced, we shall focus on idle/inactive mode requirements.

6 – MediaTek Inc.

We support to remove it from R18 and no need to discuss R19 at this moment. Note that we don't think it is suitable to define NW-B requirement based on configuration from another operator (NW-A).

7 – LG Electronics France

We support removing it from Rel-18.

We somehow understand the intention to look into the need of NW B requirements specific to MUSIM, but it is unclear if existing requirements do not work in MUSIM scenarios and hence some relaxation is needed. We think investigation and work on that direction may not be trivial given the many UE features to consider and various gap patterns to be configured, yielding the impression that this work is hard to be included in Rel-18 scope.

8 – Samsung Electronics Co.

We also agree to remove it from R18. For R19, the scope has not been decided yet, so it can be discussed then.

9 – CATT

Ok to remove it from R18 to save time in the WG.

10 – NEC Corporation

We support to remove NW B requirements in Rel-18, but do not agree to move it to Rel-19, as it is not appropriate to agree on something for Rel-19 now.

11 – Nokia Corporation

Not agree - the intent of MUSIM was that UE can follow the NW B requirements as they are currently written, and this is the baseline for all MUSIM work.

Removing all NW B requirements would mean nothing is testable, , which would create problems since Network A (serving network) has no guarantee what/if the gaps are used for the purpose requested. That would make the feature useless for practical deployments.

<p>12 – Intel K.K.</p> <p>We prefer to leave it up to RAN4 whether to consider NW B requirements. RANP action can be taken at a later stage if there is insufficient progress in RAN4.</p>
<p>13 – HUAWEI TECHNOLOGIES Co. Ltd.</p> <p>We support removing NW B requirement from R18 and we do not agree to "move it to R19" (we cannot define the content of R19 now).</p>
<p>14 – ZTE Corporation</p> <p>We are fine with the proposal to remove the discussion of the NW B requirements</p>
<p>15 – China Telecommunications</p> <p>We prefer to keep NW B requirements in WID.</p>
<p>16 – OPPO</p> <p>Fine to remove Network B requirements from R18 and also think it's too early to discuss RAN4 R19 scope.</p>

2.4 Clarify on the collision between MUSIM gap and SMTC

In [RP-220955] there is one sub-objective as below:

Identify and specify, if needed, solutions for MUSIM gap collision handling for the following cases [RAN4, RAN2]

- Case 1: Collisions between MUSIM gap and legacy measurement gap (i.e., Rel-15 to Rel-17 measurement gaps)
- Case 2: Collisions between MUSIM gap and SMTC
- Case 3: Collisions between different MUSIM gaps
- Note: RAN2 work can be triggered by RAN4 LS only, if needed

The scope of case 2 is broad and for a few RRM procedures, collision handling methods have even not been specified between the legacy measurement gaps and SMTC.

Feedback Form 4: Q4: Do you Agree to Add the following note in the case 2: Note: The scope of collisions between MUSIM gap and SMTC is limited to the scope where collisions between legacy measurement gap and SMTC are specified.

1 – Ericsson LM

We do NOT agree with the proposal to limit the scope to only MG and SMTC collision. The current WI objective is very clear and was agreed to be included. The intention is to define MUSIM requirements such that they guarantee NW A's performance. Therefore MUSIM gap colliding with SMTC should be specified to minimize the impact to NW A.

2 – Xiaomi Communications

We have no strong preference on this proposal, and consider that this could also be the decision up to the RAN4 WG discussion.

3 – vivo Mobile Communication Co.

We support the note, it will give the clear scope in RAN4.

4 – Apple GmbH

The note is a bit unclear to us. does it mean when MUSIM gap collides with SMTC, existing methodology of collision handling between legacy gap and SMTC shall be reused? e.g. when partially overlapping, measurement on SMTC has to be perform outside MUSIM gap? if so, we slightly prefer to leave it to RAN4 discussion. Some evaluation may be needed to avoid too much negative impact on NW A measurement, considering up to 3 periodic MUSIM gaps can be configured and additional legacy gap is still needed for NW A mobility. With gap overhead increased, UE would have less chance to measure SMTC outside gap.

5 – MediaTek Inc.

We think this could leave to RAN4 discussion.

6 – LG Electronics France

We support the intention of the Note.

7 – Samsung Electronics Co.

We are fine with the proposed note.

8 – QUALCOMM JAPAN LLC.

We support the intention. The text can be modified as follows.

- Note: The scope of requirements to address collisions between MUSIM gap and SMTC will be limited to RRM procedures for which collisions between legacy measurement gaps and SMTC are taken into account in the existing requirements.

9 – CATT

ok to clarify.

10 – vivo Mobile Communication Co.

@apple, the intention of note is not directly related to the solution for the collision between MUSIM gaps and SMTC, which should be discussed at the RAN4 leve. During the discussion at group level collisions between MUSIM gap and certain so called “one shot” RRM procedure are suggested to be considered. These RRM procedure could be HO, SCell activation/deactivation, active TCI state switching etc.

We think these parts should be excluded in the scope of WI. The reason is the corresponding collision handling have even not been specified for the legacy measurement gaps since Rel-15, i.e., collisions between legacy MGs and these procedures are possible since Rel-15 however there is no corresponding specification effort on it. Hence there is no necessity to specify collision handling solution between MUSIM gaps and these RRM procedures.

11 – Nokia Corporation

Not support - This question is very unclear: What exactly would be the impact to requirements?

In our understanding, the “collision” may not mean complete overlap of two gaps and could be about partially overlapping gaps as well, in which case one gap would be cancelled. This requires defined UE behaviour so that NW can plan its scheduling on one of the gaps. We assume UE can avoid Case 3 by UE implementation, but Case-1 and Case-2 should work based on assigned priority.

12 – Intel K.K.

We prefer to keep this up to RAN4 discussion and no action is needed in plenary.

13 – HUAWEI TECHNOLOGIES Co. Ltd.

Yes, we agree, we support the proposal.

14 – China Telecommunications

Follow RAN4 decision.

15 – VODAFONE Group Plc

could leave it to RAN4

16 – ZTE Corporation

We are not sure about the addition of the note and prefer to leave this to RAN4 discussion.

17 – OPPO

We think it’s better to leave this issue to RAN4 first.

2.5 Clarify RAN4 TU for Band Conflicion for R18 MUSIM

The agreement for band confliction based on discussion in R2-2210485

- 1: RAN2 can consider such Band conflict scenarios for MUSIM in CONNECTED to arrive at a graceful specification-based solution intended to mitigate such conflicts.

However, there may be RAN4 RF impact based on above agreements, regarding potential impacts, there are two options

- Option 1: RAN4 discuss this issue based on RAN2 LS
- Option 2: allocate dedicated RAN4 RF TU

Feedback Form 5: Q5: Do you Agree the above option1 or option2 to discuss band confliction issue in RAN4 ?

1 – Ericsson LM We prefer Option 1 and let RAN4 first review the RAN2 LS to better understand the impact on UE RF. If needed the TUs can be allocated at the next RAN.
2 – Xiaomi Communications We prefer Option 1.
3 – QUALCOMM JAPAN LLC. RAN2 should discuss higher layer solution to avoid such "band conflict". No need to involve RAN4 at this stage.
4 – vivo Mobile Communication Co. We prefer Option1.
5 – MediaTek Inc. Prefer option 1. The solution to band confliction should be very R2-centric. See no strong need to have R4 TU on this.
6 – LG Electronics France We prefer option1.
7 – Samsung Electronics Co. We prefer option 1 too, for now. RAN4 discussion can be triggered by RAN2 LS even without dedicated TU for cross WG coordination. Note that RAN2 will discuss what specific band conflict scenarios/solutions to be considered from the next meeting. Hence, it is hard to say that there will be RAN4 RF specification

<p>impact at least for now. However, if it is concluded that this will impact RAN4 RF specification, then dedicated RF TU shall be required, which can be discussed later.</p>
<p>8 – CATT we prefer option 1</p>
<p>9 – NEC Corporation We prefer Option 1.</p>
<p>10 – Nokia Corporation We are fine with option 1 but since this is about band characteristics, RF session may need some discussion on this (even without TUs).</p>
<p>11 – Intel K.K. We think it is too early to involve RAN4. Hence, we prefer to go with Option 1.</p>
<p>12 – HUAWEI TECHNOLOGIES Co. Ltd. Based on the online discussion for this contribution, RAN4 RF impact is not clear and RAN2 solution may address this. So we suggest to discuss first the solution in RAN2. If RAN4 work is really needed based on the RAN2's solution, option 1 is preferred.</p>
<p>13 – ZTE Corporation We prefer option 1</p>
<p>14 – China Telecommunications Option 1</p>
<p>15 – VODAFONE Group Plc we support option 1; based on LS</p>
<p>16 – OPPO Prefer Option1</p>

Summary on Q1

All companies agree to move 0.5 RAN2 TU from Apr. 2023 to Feb. 2023. **The rapporteur thinks that P1 in RP-223105 can be agreed, i.e., Move 0.5 RAN2 TU from Apr. 2023 to Feb. 2023.**

Summary on Q2

14 companies agree to specify MN-SN coordination of R17 MUSIM gaps with NR-DC in Rel-18. Two companies think we should not include it.

About how to change the WID, One company would like to give the separated bullet. Two companies think that it should be limited to inter-node message without RAN3 impact.

Considering that the big majority supports it and no additional TU is needed The rapporteur think that P2 in RP-223105 can be agreed, i.e., Specify MN-SN coordination of R17 MUSIM gaps with NR-DC in Rel-18.

About the change on WID, The rapporteur suggest to add one separated bullet and restrict it to RAN2 work only:

- **Specify MN-SN coordination of R17 MUSIM gaps with NR-DC in Rel-18 [RAN2].**

Summary on Q3

Majority companies would like to remove Network B requirement in R18, however some companies do not agree. There is no consensus on it. **Rapporteur thinks that we can leave it as RAN4 now.**

Summary on Q4

Majority companies would be ok to give the note for case2, however some companies do not agree. There is no consensus on it. **Rapporteur thinks that we can leave it as RAN4 now.**

Summary on Q5

Majority companies would be ok with LS based discussion in RAN4. **Rapporteur thinks that RAN4 can discuss the band conflict issue based on RAN2 LS.**

3 Intermediate round

Based on the summary from initial round, the rapporteur think that only Q2 is needed for the intermediate discussion.

3.1 Clarify the R17 MUSIM gap supporting in R18 MUSIM

About how to change WID, do you agree to add one separated bullet and restrict it to RAN2 work only in R18 MUSIM WID?

- **Specify MN-SN coordination of R17 MUSIM gaps with NR-DC in Rel-18 [RAN2].**

Feedback Form 6: About how to change WID, do you agree to add one seperated bullet and restrict it to RAN2 work only in R18 MUSIM WID? i.e., Specify MN-SN coordination of R17 MUSIM gaps with NR-DC in Rel-18 [RAN2].

<p>1 – vivo Mobile Communication Co.</p> <p>Yes. We suport the seperated bullet with only RAN2 impact.</p>
<p>2 – vivo Mobile Communication Co.</p> <p>Yes. We suport the seperated bullet with only RAN2 impact.</p>
<p>3 – OPPO</p> <p>Firstly, we are fine to limit the impact to RAN2 only if INM solution is applicable and also think a separate objective may be desirable. Secondly, NR-DC is applied to network A, so we have the following wording suggestion to make this objective clear:</p> <p>- Specify MN-SN coordination of R17 MUSIM gaps when Network A is NR-DC in Rel-18 [RAN2].</p>
<p>4 – QUALCOMM JAPAN LLC.</p> <p>Support. Also fine with OPPO’s suggestion.</p>
<p>5 – Intel K.K.</p> <p>We suport adding the above as a new bullet to objectives.</p>
<p>6 – Intel K.K.</p> <p>We suport adding the above as a new bullet to objectives.</p>
<p>7 – Nokia Corporation</p> <p>We are fine with the proposal (including OPPO’s clarification that it’s about NW A coordination only).</p>
<p>8 – NEC Corporation</p> <p>We are fine to have seperated bullet with only RAN2 impact.</p>
<p>9 – Ericsson LM</p> <p>Support</p>
<p>10 – Ericsson LM</p> <p>Support</p>
<p>11 – Ericsson LM</p> <p>Support</p>

12 – Ericsson LM (Sorry for spam. NWM is not working very well....)
13 – VODAFONE Group Plc Agree
14 – Xiaomi Communications Agree
15 – ZTE Corporation Agree. We are also fine with the clarification from OPPO, even though we think there is no room for misunderstanding
16 – HUAWEI TECHNOLOGIES Co. Ltd. We support OPPO's wording

4 final round

None

5 Summary and Conclusion

Based on initial round and intermediate round discussion, the rapporteur assumes the below conclusions can be agreed.

- For TU allocation, move 0.5 RAN2 TU from Apr. 2023 to Feb. 2023.
- For R17 MUSIM gap supporting, add separated bullet, i.e., “Specify MN-SN coordination of R17 MUSIM gaps when network A is NR-DC in Rel-18 [RAN2]” in revised WID RP-223492.
- For network B requirement removing or postpone, now change is needed now, leave it as RAN4 discussion.
- For Clarification on the collision between MUSIM gap and SMTC, now change is needed now, leave it as RAN4 discussion.
- For Clarification RAN4 TU for Band Confliction, RAN4 can discuss band conflict issue based on RAN2 LS

