[91E][16][UL_skipping] Moderator summary - Version 0.0.4
RAN

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RP-210876

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1 Introduction

This discussion considers the RAN#91e documents RP-210309 (38.214 CR0123), RP-210695 (RAN2 CR package, only CRs related to UL skipping, see below), RP-210516 (discussion document on 38.306 CR) RP-210517 (38.306 proposed to replace R2-2102478).

The UL skipping feature introduced as part of NR Rel-15 has just been corrected in RAN1 and RAN2. Since the issue was only detected after Rel-15 was frozen, RAN1 did not correct it in Rel-15 but only in Rel-16, as captured in LS R1-2007338 (http://3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_102-e/Docs/R1-2007338.zip), R1-2009772 (http://3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_103-e/Docs/R1-2009772.zip) and CR agreed in R1-2009687 (http://3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_103-e/Docs/R1-2009687.zip). Then in RAN2 #113e, the corresponding CRs were agreed in R2-2102459 (https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113-e/Docs/R2-2102459.zip) for 38.321, for 38.306 in R2-2102478 (https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113-e/Docs/R2-2102478.zip) and R2-2102460 (https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113-e/Docs/R2-2102460.zip) for 38.331. The RAN1 CR is now brought to RAN#91e in RP-210309 (https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Docs/RP-210309.zip) and the RAN2 CRs are part of the CR package in RP-210695 (https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Docs/RP-210695.zip).

During the capability discussions, the majority of RAN2 companies desired to have the corresponding capability as optional and 38.306 CR was agreed in R2-2102478 (https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113-e/Docs/R2-2102478.zip), claiming that since the feature was modified from Rel-15, it would have to be optional. The RAN2 contribution RP-210516 (https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Docs/RP-210516.zip) now raises the point that this conflicts with the earlier agreement on making the DG UL skipping feature mandatory from Rel-16, as well as existing CG UL skipping being conditionally mandatory already in Rel-15. The corresponding proposed change to the RAN2 CR is found in RP-210517 (https://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Docs/RP-210517.zip).

2 UL skipping CRs from RAN1 and RAN2 (initial round)

The simplest question to handle seems to be whether to agree on the RAN1-endorsed CR on UL skipping in RP-210309 and the RAN2 CRs for MAC and RRCs within RP-210695.

Q1: Can the 38.214 CR in RP-210309 be agreed in RAN#91e?

Q2: Can the RRC CR R2-2102460 within RP-210309 be agreed in RAN#91e?

Q3: Can the MAC CR R2-2102459 within RP-210309 be agreed in RAN#91e?

Feedback Form 1: Can the CR in RP-210309 be agreed in RAN#91e?

Item	Company	Comments
1	Nokia Corporation	• Q1: Yes – the 38.214 CR was postponed last time due to CR cover page and missing RAN2 CRs. If we agree to the MAC CR, we should agree to the 38.214 CR as well. • Q2: Maybe - we would first like to see how the capability discussion is resolved: The added capability signalling names seems somewhat strange (these are not "enhancements" but corrections to Rel-15 functionality). However, the names could also be change in RAN2#113bis-e. • Q3: Yes – the MAC CR should be agreed together with the 38.214 CR
2	Apple Italia S.R.L.	[Apple] Q1: Yes, the CR in RP-210309 should be agreed.
3	vivo Communication Technology	[vivo]Q1: Yes, the CR in RP-210309 should be agreed so that there is good specification basis for the relavent discusisons about more complicated scenarios with LCP prioritization and/or L1 priority.
4	Datang Mobile Com. Equipment	[CATT] yes.
5	Xiaomi Communications	Q1: Yes. The 38.214 CR in RP-210309 can be agreed. Q2: Yes. The Rel-15 UE behaviours regarding the UL skipping for UCI multiplexing is undefined. Then it is up to the UE implementation whether or not to create the corresponding MAC PDU for UCI multiplexing. With the newly added UE function for uplink skipping in TEI16, we think the UE capability is required to indicate whether the new function is supported or not. We should not mandate the UE to support the Rel-16 UL skipping function. Q3: Yes. The 38.321 CR in R2-2102460 can be agreed together with the 38.214 CR.

Item	Company	Comments
6	DOCOMO Communications Lab.	[DCM] Q1-Q3: Yes.
7	OPPO	[OPPO] Yes for all Q1/Q2/Q3.
8	MediaTek Inc.	[MTK] Q1 - Yes, CR in RP-210309 can be agreed.
9	LG Electronics Inc.	Yes
10	QUALCOMM JAPAN LLC.	Q1: Yes
11	ZTE Corporation	Yes
12	Spreadtrum Communications	Q1: Yes
13	HuaWei Technologies Co., Ltd	Huawei, HiSilicon: Yes
14	Samsung Electronics Co., Ltd	Yes
15	Ericsson LM	Yes

Feedback Form 2: Can the RRC CR R2-2102460 within RP-210309 be agreed in RAN#91e?

Item	Company	Comments
1	Nokia Corporation	• Q2: Maybe - we would first like to see how the capability discussion is resolved: The added capability signalling names seems somewhat strange (these are not “enhancements” but corrections to Rel-15 functionality). However, the names could also be change in RAN2#113bis-e.
2	Apple Italia S.R.L.	[Apple] Q2: Yes, the CR in R2-2102460 can be agreed. Just a typo in Q2: it should be ”RP-200695” instead of ”RP-200309”.
3	vivo Communication Technology	[vivo]Q2: Yes, the RRC CR R2-2102460 in RAN2 CR pack RP-200695 should be agreed.

Item	Company	Comments
4	Datang Mobile Com. Equipment	[CATT] Yes. It should be in CR package RP-210695.
5	DOCOMO Communications Lab.	[DCM] Yes.
6	OPPO	[OPPO] Yes.
7	MediaTek Inc.	[MTK] Q2 - Yes. The RRC CR R2-2102460 within RP-210695 can be agreed.
8	QUALCOMM JAPAN LLC.	Q2: Yes (but the CR is in RP-210695, instead)
9	ZTE Corporation	Yes, if the question is only asking for RRC parameter. For the new introduced UE capabilities, it depends on the discussion below. In addition, RP-210309 should be RP-210695.
10	Spreadtrum Communications	Q2: Yes.
11	HuaWei Technologies Co., Ltd	Huawei, HiSilicon: Yes, but to confirm the CR is in RP-210695
12	Samsung Electronics Co., Ltd	Yes
13	Ericsson LM	Yes with correction of tdoc number for CR as pointed out previously by other companies. • With respect to capability discussion, we have provided our view in Q4.

Feedback Form 3: Can the MAC CR R2-2102459 within RP-210309 be agreed in RAN#91e?

Item	Company	Comments
1	Nokia Corporation	Q3: Yes – the MAC CR should be agreed together with the 38.214 CR
2	Apple Italia S.R.L.	[Apple] Q3: Yes, the CR in R2-2102459 can be agreed. Just a typo in Q3: it should be ”RP-200695” instead of ”RP-200309”.

Item	Company	Comments
3	vivo Communication Technology	[vivo]Q3: Yes, the MAC CR R2-2102459 in RAN2 CR pack RP-200695 should be agreed.
4	Datang Mobile Com. Equipment	[CATT] Yes. It should be in CR package RP-210695.
5	DOCOMO Communications Lab.	[DCM] Yes.
6	OPPO	[OPPO] Yes.
7	MediaTek Inc.	[MTK] Q3 - Yes. The MAC CR R2-2102459 within RP-210695 can be agreed.
8	LG Electronics Inc.	Yes
9	QUALCOMM JAPAN LLC.	Q3: Yes (but the CR is in RP-210695, instead)
10	ZTE Corporation	Yes
11	Spreadtrum Communications	Q3: Yes
12	HuaWei Technologies Co., Ltd	Huawei, HiSilicon: Yes, but to confirm the CR is in RP-210695
13	Samsung Electronics Co., Ltd	Yes
14	Ericsson LM	Yes with correction of tdoc number for CR as pointed out previously by other companies.

Summary: Almost all companies agree that the CRs for MAC, RRC and 38.214 can be agreed in RAN#91e. Depending on the discussion on capability CR, additional RRC CR may be required.

3 Handling UL skipping capabilities in Rel-15 and Rel-16 (initial round)

The contribution RP-210516 raises an issue with UL skipping capabilities: It states that in Rel-15 these capabilities were defined in RAN2 and the following was captured in TR38.822 as the conclusion of Rel-15 decisions on the matter (wherein part of the decisions were made in RAN#80 as per RP-181397 (http://3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_80/Docs/RP-181397.zip) and informed to RAN2 in LS RP-181484 (http://3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_80/Docs/RP-181484.zip)):

Table 1: Excerpt from TR38.822 on decisions for Rel-15 UL skipping capabilities

Features	Index	Feature group	Components	Need of FDD / TDD differentiation	Need of FR1 / FR2 differentiation	Mandatory / Optional
3. MAC	3-6	Skipping UL transmission	1) Skipping UL transmission for dynamic UL grant 2) Skipping UL transmission for configured UL grant	1) Yes 2) No	No	**1) Optional with capability signalling. <u>Mandatory with capability signalling from Rel-16</u> <u>2) Conditional mandatory if the UE supports configured grant</u>**

Since there are in fact two different UE capabilities (i.e. dynamic grant and configured grant capabilities), it seems reasonable to consider those in isolation since they could have different consequences. The RAN2#113e decision was that the new Rel-16 capabilities introduced by R2-2102478 (https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113-e/Docs/R2-2102478.zip) and R2-2102460 (https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113-e/Docs/R2-2102460.zip) would be both optional. The cited reason in RAN2 discussions was that these were ”substantial changes” to the Rel-15 functionality, despite the intent in RAN1 being to mainly fix the Rel-15 case with UL skipping and PUCCH/PUSCH overlap. For this reason, the change in RP-210517 (the difference being only in the ”M”-column) proposes to revert the RAN2 decision to comply with the earlier RAN#80 decision to avoid WG overturning TSG decision without clear justification.

Hence, since the Rel-15 capability was supposed to become mandatory in Rel-16, which was not done because the discussions were ongoing, the conflict should be resolved. Knowing the reasons behind the company viewpoints on this will also be useful for the issue resolution so companies are requested to state their reasoning behind their view in the feedback form below.

Q4: How should the discrepancy between RAN#80 and RAN2#113e decisions on UL skipping capability for Rel-16 be resolved and why?

Feedback Form 4: How should the discrepancy between RAN#80 and RAN2#113e decisions on UL skipping capability for Rel-16 be resolved and why?

Item	Company	Comments
1	Nokia Corporation	• We think the most straightforward resolution is our proposal in RP-210517. However, if companies think there are issues with e.g. intra-UE prioritization cases in Rel-16, we would be fine to consider this capability only apply to non-intra-UE prioritization cases.
2	Apple Italia S.R.L.	[Apple] Our understanding is that the RAN2 CRs in R2-2102459, R2-2102479 and R2-2102460 only intend to cover the UL skipping features without Rel-16 intra-UE prioritization features (LCH-based prioritization and/or two PHY priorities). But we do agree that it would help to clarify the FG description further. With this understanding, we still prefer that the FGs introduced in R2-2102460 are defined as optional. The Rel-16 UL skipping feature is designed with a very different UE procedure compared to the Rel-15 UL skipping feature, which was not taken into account when RAN#80 plenary decision was made. In addition, there are still some design issues which are not finalized yet in RAN1 discussion. For example, how the cases with PUSCH repetitions are handled can have significant impact on UE implementation.
3	vivo Communication Technology	[vivo]Q4: To our understanding, such discrepancy has been noticed and explicitly discussed in last RAN2 meeting (see the email discussion report in R2-2102458 Report of [AT113-e][019][NR16 IIOT] UL Skipping), as the discussion outcome, RAN2 agreed to make the feature optional. Therefore we think we should stick to latest RAN2 agreement and approve the 38.306CR.
4	Datang Mobile Com. Equipment	[CATT] We tend to agree with vivo comment that R2 agreements should be followed. Furthermore, it might not be the same feature as was discussed in RAN#80. RAN1 changes require that MAC check with PHY if any UCI is multiplexed on the corresponding PUSCH of the uplink grant.
5	Datang Mobile Com. Equipment	[CATT] we tend to agree with vivo that R2 agreements shall be followed. It might not be the same feature as was discussed in RAN#80. RAN1 changes now requires MAC to check with PHY if any UCI is multiplexed on the corresponding PUSCH of the uplink grant. And R2 discussions have taken all those progress into account.

Item	Company	Comments
6	OPPO	[OPPO] We have the same understanding as vivo. RAN2 already learned the issue, discussed it and made the decision. We do not see the necessity to re-open it here.
7	MediaTek Inc.	[MTK] We also prefer to follow the conclusion in RAN2#113e as we understand the discrepancy is fully discussed in last RAN2 meeting. The new R16 UCI handling request more complicate UE implementation. Also it is simply too late to have mandatory feature in Rel-16.
8	LG Electronics Inc.	We prefer to make it mandatory. In our view, this is to fix a feature which wouldn't actually work well in the real world rather than an enhancement of the feature. We also think this is not to be applied to intra-UE prioritization, which has not yet been discussed.
9	QUALCOMM JAPAN LLC.	It is too late to introduce a mandatory feature. The principle agreed in release-15 should not simply applied to the release-16 correction. It is more important to us to allow release-16 implementation to support, e.g. mobility enhancement, without supporting the fix for UL skipping. Essentially, we should keep different features independent eash other.
10	ZTE Corporation	We prefer to stick to previous decision made in RAN#80. The fundamental functionality of UL skipping is to not generate a MAC PDU for a HARQ entity under some conditions. This functionality in Rel-16 with only some corrections is not changed compared to Rel-15. To be more specific, the main correction is to limit UL skipping in less use cases by excluding the UCI overlapping case. This should be easier and cleaner for UE implementation.
11	HuaWei Technologies Co., Ltd	Huawei, HiSilicon: we understand there was agreements from RAN#80 on UL skipping capabilities, however we do not see there is conflicting with previous RAN agreements according to the latest discussion from RAN1 and RAN2. The original UL skipping capabilities defined in 3-6 means the UE shall not generate a MAC PDU for the uplink grant if there is no data available for transmission. While the newly introduced UE capabilities means in some cases the UE can still generate a MAC PDU for the uplink grant even if there is no data available for transmission. So these two capabilities are not exactly the same and we don't see much need to have consistency on whether they are mandatory or not. As long as there is no inter-operability issue, we see no big problem to stay where we are. To be more specific, for CG part, as long as the UE supports CG, the UE supports Rel-15 UL skipping capability without reporting. Thus if the UE does not report the –r16 UL skipping capabilities, the Rel-15 UE capabilities apply; if the UE reports –r16 UL skipping capabilities, it means the UE supports both R15 and R16 capabilities and it is up to the network which way is enabled. For DG part, the Rel-15 UE capability is optional, thus if the UE reports either Rel-15 or Rel-16 capabilities, the network could understand the UE supports one of such capability; or if the UE reports both, the network understand both capabilities are supported by the UE and can decide which way is enabled. In short there is no inter-operability issue to handle these capabilities together.

Item	Company	Comments
12	Samsung Electronics Co., Ltd	We share the view with vivo and Huawei: we are fine to stick to the latest RAN2 agreement.
13	Ericsson LM	As well understood, our preference would be to have the feature mandatory with capability signaling. However, we would be supportive of respecting the RAN2 agreements for the following additional reasons. • We rather to have the feature optional than making two variants based on whether overlapping is included or not. Such a fragmentation would complicate scheduling. • We would like to avoid that readiness for TODT of this feature, delay the implementation of other most important features in Rel-16. • We also acknowledge that since RAN#80, enabling Uplink skipping turned to become more and more complicated as it is apparent from the still-ongoing discussions. Considering the current situation, and very late stage in Rel-16, it is reasonable to endorse RAN2 decision.

To expedite the discussion, companies are asked to also provide any compromise proposals (if any) they see possible based on the discussion in RP-210516.

Q5: Are there any compromise proposals on the capability handling based on both the latest RAN2 agreements and RAN#80 agreement?

Feedback Form 5: Are there any compromise proposals on the capability handling based on both the latest RAN2 agreements and RAN#80 agreement?

Item	Company	Comments
1	Nokia Corporation	• If companies cannot agree to mandating the "new" Rel-16 capabilities, then we are left with a solution where the RAN#80 decision should still be followed and the original Rel-15 DG UL skipping capability would be mandated. This would be an inconsistent decision, as it would deny the purpose of making corrections to the R15 capability in the first place. We need to avoid circular discussions and respect the RAN Plenary decision to have a working UL skipping functionality that is mandatory in Rel-16 that ensures NR performance is not worse than LTE.
2	Apple Italia S.R.L.	[Apple] If we cannot approve the RAN2 CRs now, we prefer to postpone the decision to a later time after all the design aspects are finalized so that we can have a clear assessment on the implementation impact.

Item	Company	Comments
3	vivo Communication Technology	[vivo]Q5: first of all, as we commented for Q4, we should keep the RAN2 agreement about optional for *enhancedSkipUplinkTxDynamic-r16. If we understood correctly, the compromise proposal from Nokia is to change the "old" UL skipping feature skipUplinkTxDynamic from optional to mandatory according to the RAN#80 agreement, this seems to be a seperate discusison as the CR packs are not intended to adress this legacy feature. Having said that, we might be open to have it seperately discussed but doulbt how useful it is to change it as mandatory given the understanding that the legacy skipUplinkTxDynamic feature is essentially broken.*
4	Datang Mobile Com. Equipment	[CATT] First of all these are R16 changes so we don't see a need to further postpone. Then as commented in Q3 we'd prefer to stick to R2 agreement, as tricktly speaking the previous RP agreement and the latest R1/2 agreements are not about exactly the same feature and thus perhaps no much problem of 'discrepancy'...
5	OPPO	[OPPO] In our view, any "compromise" solution between RAN2 agreement and RAN#80 agreement could make things more complicated. In addition, RAN2 agreement claims not only a technical decision, but also a decision made with the knowledge of potential "discrepancy", in that sense, to overrule any discrepancy. This latest decision in RAN2 should be honored.
6	MediaTek Inc.	[MTK] First of all, we don't want to delay any R16 feature as it would just slow done the implementation schedule. We do not really see the problem here. In practical, the "mandatory with IOT" bit is the same as "optional" bit in RRC signaling. The UE could anyway claim it does not support the feature. Whether to implement a feature depends on marketing. If this R16 UL skipping is beneficial and vendors/operators are interested in this feature, the UE will implement it eventually. There is no need to change the RAN2 endorsed CR.
7	ZTE Corporation	Considering RAN1 has been discussing different overlapping cases, one compromised way is to make the fundamental UL skipping cases as mandatory (conditional mandatory for CG) while some other cases as optional, e.g., repetition case and the case with LCH/PHY prioritization.
8	HuaWei Technologies Co., Ltd	Huawei, HiSilicon: we understand the latest RAN2 agreements is already a compromised solution, and thus we prefer to stay with RAN2 agreements, also as explained in Q4.

Summary: Several companies raise concerns about IODT readiness, which requires minimizing mandatory features in Rel-16. However, it is also raised that the fundamental UL skipping cases (e.g. UL skipping with CG) could be made conditionally mandatory and leave other cases (e.g. PUSCH repetition cases) optional.

4 Additional questions and discussion (intermediate round)

For agreeing to the CRs, all companies support agreeing to the MAC, RRC and 38.214 CRs in RAN#91e. Therefore, it seems reasonable to go with that and no further discussion is required.

Proposal 1: Agree to the RRC, MAC and 38.214 CRs in RAN#91e.

On the capability CR, the major claims towards mandating a capability are about timeliness and IODT, whereas the principal question of allowing a correction CR to change earlier decision is not accounted for. The rapporteur sees the following potential options:

C1. Mandate Rel-15 DG capability from Rel-16 onwards but retain the Rel-16 capabilities as optional (this follows both RAN#80 and RAN2#113e decisions).

C2. Retain the Rel-16 capabilities as optional but mandate the capabilities from Rel-17 onwards (allows again time for UE implementations while retaining the spirit of the RAN#80 decision).

The rapporteur notes that the C1 proposal seems not feasible as it's likely no IODT would be available for a broken feature, but the C2 option seems like the best alternative that works for all companies: Time is given to implement the feature without interfering with the Rel-16 feature deployments. Hence, companies are requested to provide feedback on whether C2 could be considered agreeable.

Feedback Form 6: Is the compromise proposal C2 (Rel-16 capabilities are optional but become mandatory in Rel-17) agreeable?

Item	Company	Comments
1	Apple Italia S.R.L.	[Apple] We support Proposal 1. For Proposal C1, we agree with the moderator's comment that it may not be so useful. For Proposal C2, we do not think it is needed. During the first round of comments, quite some companies commented that the Rel-16 UL skipping feature is very different from the Rel-15 UL skipping feature, so the RAN#80 decision is no longer applicable. Therefore, there is no need for a compromise just due to RAN#80 decision. As commented by Apple and some other companies, the UE complexity is also quite different, so we think they should still be kept as optional in future releases.

Item	Company	Comments
2	Intel Corporation (UK) Ltd	Regarding C1, we agree with the moderator's view given that RAN1 agree to have Rel-15 UL skipping behavior undefined, i.e. it is incomplete feature. Therefore, mandating Rel-15 capability wouldn't help any practical impact in implementation. We think that uplink skipping is an essential feature for CG having short periodicity/multiple CGs where resource over-dimensioning is expected to meet low latency requirement. That is why uplink skipping was introduced and became mandatory for short SPS periodicity in LTE. However, as companies mentioned, it is still possible to leave it to implementation and companies decide to implement based on their own use case of interest. We think RAN2 agreement is more reasonable given that it turns out that this feature is more complicated than RAN2 expect from PHY layer operation pov. In that sense, we prefer to keep RAN2 agreement for Rel-16 and beyond.
3	QUALCOMM JAPAN LLC.	We propose to stick to RAN2 agreement. To us it does not matter whether a given change to the specification is a correction or not. What matters is whether it changes UE behaviour and imposes new implementation. Having agreement for release-17 (C2) is creating the same problem that we may have to revisit in the future. We may find other issues around UL skipping as it gets tested / deloyed and the C2 "principle" if agreed in this RAN meeting again will create the same division among companies.
4	vivo Communication Technology	We support proposal 1. Regarding C1: we do not think mandating Rel-15 DG skipping is meaningful as the feature is considered as broken, there is no good reason to mandate implementing a broken feature. Regarding C2: We tend to agree with previous comments that it should be OK to keep the latest RAN2 agreement (i.e. optional) and leave it to market/operator to decide when to implement Rel-16 skipping feature.
5	MediaTek Inc.	[MTK] Both C1 and C2 do not really affect whether to approve the RAN2 agreed 38.306 CR. We should conclude to approve the 38.306 CR first. C1 is of course not reasonable to mandate a feature that is broken. We don't have strong view on whether to change Rel-16 UL skipping feature from "option" to "mandatory with IOT" in Rel-17. Practically, it does not change too much.
6	OPPO	[OPPO] Sharing the similar views from other companies for C1 and C2, we prefer to stay with current RAN2 agreement.
7	Samsung Electronics Co., Ltd	We have same view as Qualcomm: we support the Proposal 1, but do not agree with C1 and C2, and propose to stick to the latest RAN2 agreement.
8	HuaWei Technologies Co., Ltd	Huawei, HiSilicon: we support Proposal 1 as well as approving the CR for 38.306. Regarding C1, we don't think it makes much sense as moderator commented already; regarding C2, this seems not affecting Rel-16 CRs and so maybe no need to decide right now. If companies do have strong requirement to discuss this, we suggest to discuss this when Rel-17 UE feature discussion is started.

Item	Company	Comments
9	Nokia Corporation	We agree with moderator proposal 1. As for C1/C2, as commented by the moderator already, C1 is not feasible in practice. C2 could be a reasonable compromise, but it is paramount that the agreement is made in RAN Plenary already that the feature will be mandated in Rel-17 onwards. It should be noted that the main question is not whether or not we keep the RAN2 agreement, but if we keep the RAN#80 agreement. C2 would essentially replace the RAN#80 agreement with a RAN#91e agreement along the same lines, and that would be agreeable to us, though not our preference.
10	ZTE Corporation	We support proposal 1. Regarding C1, we agree moderator's view that it is not a feasible for a broken feature. As for C2, we have the same understanding as Nokia. If no consensus would be made, the previous RAN plenary decision should be followed. If companies are worried about IODT or delay of implementing Rel-16 features, C2 is actually a good compromise. So, we would be ok with C2.
11	LG Electronics Inc.	Regarding Proposal 1: We agree. Regarding C1/C2: We are fine with option C2. The reason of having Rel-15 UL skipping as mandatory is not because it is simple but because it is useful. Even with the correction, the principle and the benefit of UL skipping are still there and we don't think it adds much complexity compared to Rel-15 UL skipping. Thus, we basically think there is no critical reason to revert the RAN#80 agreement , but given that it is too late to make it as mandatory in Rel-16, we are fine to have it as optional in Rel-16 but think it is reasonable to make it as mandatory again in Rel-17.
12	Datang Mobile Com. Equipment	[CATT] Proposal C2 sounds reasoanble to us.
13	Spreadtrum Communications	We support proposal 1. We still prefer to confirm RAN2 agreements first. And according to C1, it is commonly understand that UL skipping feature in Rel-15 is not complete, and do not need to worry about it. According to C2, it can be discussed in the session of Rel-17 UE feature.
14	Ericsson LM	Proposal 1, we are supportive of the proposal. C1, as moderator and other companies have acknowledged, it is not perusable. C2, although it would be our preference, we are hesitant not to conclude the Rel-16 case due to the capability discussion for Rel-17. This approach potentially leads us to the same situation that we are currently finding ourselves in where the discussions on uplink skipping evolved from the time that capability decision made in RAN#80.

Summary: The positions between companies are mixed: the companies supporting the original RAN#80 decision also support the proposed compromise, whereas the companies opposing that also oppose the compromise. Hence, there are only two choices: Either go with the compromise C2

(which is actively opposed by some companies) or go with what RAN2 has proposed.

5 Decisions on UL skipping CRs in RAN#91e (final round)

There is some support for the rapporteur proposal C2 (from both side of the debate but several companies still have reservation. Hence, the next step seems to be to figure out what are the possible options on the table: Although the main concerns raised earlier were about Rel-16 delays, it seems based on the replies that the debate has become the typical UE vs. network - vendor debate on mandating capabilities. One company notes that in case the C2 is adopted, it should be avoided that a similar discussion happens again in Rel-17 while one company would like to postpone the entire discussion to Rel-17. However, postponing the discussion doesn't seem to have any benefit as it will not force either side to change their mind, and it's very conceivable the very same discussion would just occur again. Therefore making a decision in this meeting seems preferable to postponing to avoid wasting time in the future.

To come to a conclusion, while it seems that one side is not willing to compromise at all, the only choice is to consider whether the RAN2-proposed decision would be adopted (i.e. Rel-16 capabilities are optional). This would then be **RAN#91e decision** and not RAN2 decision, reverting the earlier RAN#80 decision due to changed circumstances.

Hence, the rapporteur would propose the following as conclusion of this discussion:

Conclusion 1: WGs shall not revert RAN decisions without consulting with RAN. In case technical issues are raised that would conflict with RAN decisions, the WG shall provide provide technically endorsed CRs on the possible alternatives so the decision can be made in RAN.

Conclusion 2: RAN#91e approves the CR R2-2102478 (UE capability for Rel-16 UL skipping) endorsed in RAN2.

While the above conclusion 2 does not reflect any compromises, the conclusion 1 one aim to ensure the proper processes are followed in the future.

Feedback Form 7: Do companies have objections to above two conclusions as resolution to this discussion?

Item	Company	Comments
1	Datang Mobile Com. Equipment	on conclusion 1: To us this looks more like a common practice. And as discussed previously it could be argued that the feature is not exact the same as previous agreed in RP with new changes that requires interaction btw MAC and PHY. That being said we do not have strong view regarding this particular conclusion. on conclusion, 2: we are of course supporting this.

Item	Company	Comments
2	Apple Italia S.R.L.	We support Conclusion 2. For conclusion 1, even though we agree that typically a WG should not make decision conflicting with RAN plenary, we are not entirely sure if it is necessary to have such a conclusion. First of all, any WG would not make a decision conflicting with RAN decision without good reasons to justify it. Even in the case of UL skipping, as many companies commented, it should not be considered as conflicting with previous RAN decision because it is about a new feature design. In addition, a CR submitted by a WG needs to be approved by RAN plenary anyway. In this sense, we do not think we need to formally agree on conclusion 1. If most companies think such a discussion is necessary, it would be better to discuss this among broader audience instead of under the UL skipping thread.
3	Intel Corporation (UK) Ltd	We are fine with both conclusions.
4	MediaTek Inc.	We support Conclusion 2. We understand that conclusion 1 is general practice. So, have no strong view to capture this or not.
5	vivo Communication Technology	On conclusion 1, althtough it seems natrual and common practice, but stricly speaking latest RAN2 agreement did not violate such spririt since the Rel-16 version of UL skipping feature is not excatly the same as the Rel-15 one assumed when RAN#80 agreement was made so there is nothing wrong here. On conclusion 2, we fully support.
6	Samsung Electronics Co., Ltd	We tend to agree with the comment from RAN2 chairman in the reflector, and thus the first conclusion would not be needed. We think that the general principle in 3GPP is to respect the decision from each TSG/WG (no doubt!), but this cannot always be guaranteed depending on the certain circumstances... BTW, thank you Tero for leading the discussion. We believe, by having this discussion explicitly, people acknowledge that this should not be happened in principle.
7	HuaWei Technologies Co., Ltd	Huawei, HiSilicon: we support conclusion 2. For conclusion 1, although we see this is a common practice, strictly speaking, RAN2 did not revert RANP agreements as the two capabilites are not exactly the same, and so we don't see much need to have conclusion 1.
8	Spreadtrum Communications	We support Conclusion 2 For conclusion 1, it is believed to be a common practice, we do not have strong views on it. Furthermore, RAN2 agreement is based on the more UL skipping discussion in Rel-16. it does not collide with Rel-15.
9	LG Electronics Inc.	We are fine with Proposal 2. Regarding P1, we understand your intention and thanks for your effort, but it may create more complicated discussion whether some decision made in WG actually violates RANP decision or not., (like now) even before consulting with RANP. So, as expressed by Samsung, we also think it is sufficient to have this kind of discussion explicitly to be careful to avoid such situation in the future.

Item	Company	Comments
10	Xiaomi Communications	Xiaomi: C1 seems a little bit confusing. We don't think the RAN2 CRs revert any RAN decision.
11	MediaTek Inc.	We would like to change our view a little bit on conclusion 1 (See #4). Although conclusion 1 is indeed general practice. We would like to emphasize in this particular case, RAN2 does not violate the principle (as also commented by some other companies). Therefore, we think that capture conclusion 1 is NOT necessary.
12	Deutsche Telekom AG	Sorry for steping in so late. From an operator view this is a important improvement topic and we suggest agreeing on what was called C2 in the intermediate round: **C2. Retain the Rel-16 capabilities as optional but mandate the capabilities from Rel-17 onwards (allows again time for UE implementations while retaining the spirit of the RAN#80 decision).**
13	Nokia Corporation	Unfortunately, we are not very happy about this proposal and would not support it: From our viewpoint the compromise proposal C2 would still work the best, and there have been no real technical reasons raised against it. And the fact remains that RAN#80 agreed already to mandate the UL skipping in Rel-16. And it is also a fact that doing **anything else** does revert the decision. So we would still want to stick with the C2 as a compromise: Note that this would NOT change anything right now but there would be agreement that the situation changes in Rel-17. To us that is both pragmatic and still addressing the high-level concerns on delaying Rel-16 device availability. Please note there is still a Rel-16 IODT bit, which we see as an extra compromise from our side already. This is a useful feature, and was supposed to be mandatory already in Rel-15. The fact that it needed corrections should be nothing special.
14	TELECOM ITALIA S.p.A.	Same as Deutsche Telekom (sorry for just entering now the discussion)
15	Intel Corporation (UK) Ltd	Just to clarify the proposal from Nokia, is it to propose make UL skipping as mandatory or mandatory with capability signaling from Rel-17? For the former case, we need to have two NW vendors to declare the implementation of the feature. Although we understand Nokia's concern and preference, it is too early to decide it now. If it is the latter, we would be open but there is no practical difference between optional and mandatory with capability signaling.
16	Nokia Corporation	Moderator comment: If we don't mandate a capability from Rel-16 onwards, there is a reversion of earlier decision: the one to mandate the UL skipping capability for DG from Rel-16 onwards. It doesn't matter if there was another capability created after that, simply the fact that the Rel-16 does not mandate the capability reverts the earlier decision. This is not an opinion but fact. On the question from Intel, the C2 would mandate the Rel-16 capabilities from Rel-17 onwards, i.e. the same as was agreed in Rel-15 capability from Rel-16 onwards.

Item	Company	Comments
17	Verizon UK Ltd	Sorry for a late response. As a network operator, we would have liked to have this feature mandatorily supported in R16. It is a feature already deployed in LTE and we want to ensure NR performance is on par with LTE. We also understand the special circumstance that the late changes in RAN1 brought in ways that are different from previous understanding and would likely delay the final products and IODT. So we are OK with leaving it optional in Rel-16. But we see no reason it can't be mandatory in Rel-17. We hope companies take it into consideration in their early Rel-17 platform designs and be ready to support it then.

Final conclusions: Some companies (including operators) would prefer the intermediate proposal C2 but most support the conclusions expressed in fine-tuning round. Everyone also agrees that it's a general practice that RAN2 would not override RAN decisions but not all agree to capture such as conclusion. Several comment that the discussion on mandating could also occur in Rel-17 according to normal rules for mandating capabilities, but currently such rules do not exist for NR capabilities. However, it is clear that it is possible to mandate the capabilities in the future if RAN decides so.

6 Conclusions

The rapporteur proposes to capture the following as conclusion to this discussion.

Conclusion 1: The CRs R2-2102459, R2-2102478, R2-2102460 and RP-210309 are agreed in RAN#91e.

Conclusion 2: The Rel-16 UL skipping capabilities may be mandated in Rel-17, subject to future agreement in RAN.

Companies are reminded that RAN2 should follow normal procedures when agreeing to capability CRs: If the capability CR is different than earlier RAN agreement, the reasons should be indicated so RAN can make the final decision.