3GPP TSG-RAN WG2 Meeting #109 electronic Draft [R2-2001664](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001664.zip)

**24 Feb – 6 Mar 2020**

Source: RAN2 Session chair (InterDigital)

Title: Session minutes for NR-U, Power Savings, NTN and 2-step RACH

**E-meeting guidance:**

Please refer to:

[R2-2002046](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2002046 .zip) RAN2 109-e Methods and Guidance   Chairman, Vice Chairmen, Session Chairs   discussion Late

**Webinar tool**

Use the following link for tutorial

<https://assets.cdngetgo.com/5b/83/dda8d81d4bf6b9ec32632861505d/gotowebinar-attendee-slides-1.pptx>

***Use of question box (IMPORTANT - READ)***

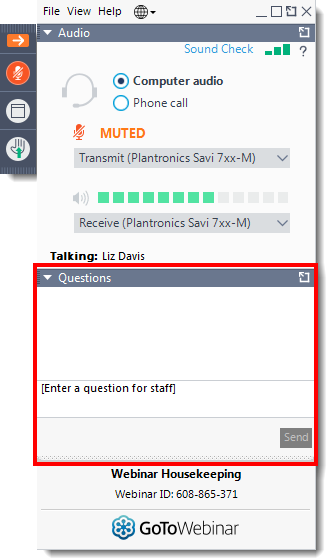
* **[Copying agreements]** I will be using the question/chat box to copy paste the agreements that are being shown live via screen sharing, so delegates that are experiencing delays can also see the agreements.
* **[Making comments/questions]** In addition to the raise hand, delegates can use the question box to enter specific comments/question using the guideline specified below (see below how to use it).

**Questions box etiquette**:

* Keep question/comment very short (1 line)
* Avoid multiple comments on one issue
* Only make a comment on the proposal that is currently being discussed
* Do not use question box to say you agree
* Please appoint a single delegate per proposal to make comments/questions

**When making a comment** please use a tag (to specify type of comment you want to make) followed by the actual comment/question. Use the following tags:

* Disagree: (what you disagree with/why)?
* Wording: (wording suggestion – copy only relevant part of the agreement so it remains short)
* Question: (only questions to understand the issue being discussed)
* Comment: (short description comment) – use this tag if it is none of the above



**Question/Chat box**

* Click on this undocking button to undock the question box and expand it for ease of readability.
* With the help of a moderator, we will be monitoring the questions/comments to determine who should speak next. This will be used in addition to the raise hand option.
* You will NOT be able to see comments/questions from other people. We will either call out the person to speak or we will read out the comment if it is short and quick
* This DOES NOT preclude the use of the hand function

**Organizational:**

1. LSs – contact companies should flag LSs that need presenting. Otherwise we will directly note them
2. Running CRs will be endorsed to be used as baseline and moved to email discussion. Further agreements will be captured on that baseline CR and further comments can only be provided online. Rapporteurs should flag if there is a big issue that needs to be discussed before the meeting
3. Only Email discussions and summary discussions will be treated during e-meetings (indicated clearly in the meeting notes)
4. All organization emails and notes will be shared over the following email discussion throughout the two meeting weeks:

* [AT109e][500] Organizational Diana - NR-U, 2-step RACH, Power Savings

Scope:

* + - Share plans for the meetings and list of ongoing email discussions for the sessions related to NR-U, 2-step RACH, and power saving
    - Share meetings notes and agreements for review and endorsement

**Recording**

Recording of voice or video at meetings is not used in 3GPP. This applies also to this e-Meeting. At this e-Meeting, no specific actions are taken to prevent the recording of web conferences. Companies that have concerns related to recordings, if any, may express those by email in the main meeting organizational thread [AT109e][000]

**Schedule/Plan:**

**NR-U**

Monday February 24th, 13:30 – 15:30 CET

* Treat only flagged LS
* Endorse CRs without presentation and give revised numbers and move them to email discussions

Treat ongoing email discussions on open issues (**Email discussions**: [108#38] [108#75]

Tuesday, March 3rd 05:30– 6:30 CET

* Treat only email discussions on summary of remaining open issues (**Email discussions**: 501, 502, 503)

**Power saving:**

Tuesday, February 25th, 15:30 – 17:30 CET

* Treated only flagged LS
* Endorse CRs without presentation and give revised numbers and move them to email discussions
* Treat ongoing email discussions on open issues (**Email discussions**: [108#39][108#78][108#79])

Thursday, March 5th, 05:30– 6:30 CET

* Treat only email discussions on summary of remaining open issues (**Email discussions**: 504, 505, 506)

**2-step RACH:**

Wednesday, February 26th, 15:30 – 17:30 CET

* Treated only flagged LS
* Endorse CRs without presentation and give revised numbers and move them to email discussions
* Treat ongoing email discussions on open issues (**Email discussions: [108#82] [108#82]** )

Wednesday, March 4th, 05:30– 6:30 CET

* Treat only email discussions on summary of remaining open issues (**Email discussions**: 507, 508)

**List of offline email discussions:**

*NOTE: The official kickoff date for these email discussions are Monday 24th, however the rapporteurs can send them before this date and companies are welcome to participate before (but do not have to until the official kick off on Monday, Feb. 24th)*

**NR-U**

* [AT109e][501][NR-U] UP Open Issues for RACH and UL LBT (InterDigital)

Scope:

* + - Identify/Summarize all remaining open issues related to RACH and UL LBT from submitted papers in 6.2.2.1 and 6.2.2.2 and seek companies feedback on the need to solve the critical issue and preferred solutions.

Intended outcome:

* + - Set of proposals with full consensus (aim to agree to those over email)
    - Set of proposals with almost full consensus and easy to agree
    - Set of open issues and proposals to postpone to next meeting.
    - Open issues that should no longer be pursued

Deadline for providing comments:

* + - Companies input: Wednesday, Feb. 26th 15:00 CET
    - Rapporteur proposals: Thursday, Feb. 27th 3:00 CET (one day for rapporteur to make conclusions)
    - Comments on proposals’ wording, Friday, Feb. 28th by 18:00 CET
* [AT109e][502][NR-U] UP open issues for CG and Others AI (OPPO)

Scope:

* + - Identify/Summarize all remaining open issues related to CG and Other AI from submitted papers in 6.2.2.3 and 6.2.2.4 and seek companies feedback on the need to solve the critical issue and preferred solutions.

Intended outcome:

* + - Set of proposals with full consensus (aim to agree to those over email)
    - Set of proposals with almost full consensus and easy to agree
    - Set of open issues and proposals to postpone to next meeting.
    - Open issues that should no longer be pursued

Deadline for providing comments:

* + - Companies input: Thursday, Feb. 27th 3:00 CET
    - Rapporteur proposals: Thursday, Feb. 27th 17:00 CET
    - Comments on proposals’ wording, Monday March 2nd by 10:00 CET
* [AT109e][503][NR-U] CP open issues (Qualcomm)

Scope:

* + - Identify/Summarize all remaining open issues related to Mobility and Others from AI 6.2.3.1 and 6.2.3.2 and seek companies feedback on the need to solve the critical issue and preferred solutions.

Intended outcome:

* + - Set of proposals with full consensus (aim to agree to those over email)
    - Set of proposals with almost full consensus and easy to agree
    - Set of open issues and proposals to postpone to next meeting.
    - Open issues that should no longer be pursued

Deadline for providing comments:

* + - Companies input: Wednesday, Feb. 26th 18:00 CET
    - Rapporteur proposals: Thursday, Feb. 27th 4:00 CET (one day for rapporteur to make conclusions)
    - Comments on proposals’ wording, Friday, Feb. 28th by 20:00 CET
* [AT109e][509][NR-U] LS response to RAN1 (Qualcomm)

Scope: LS response to RAN1 on MIB signalling of Q

Intended outcome: LS to be sent to RAN1 and approval by email from session chair

Deadline: Friday, February 28th

* [AT109e][510][NR-U] RRC Running CR (Qualcomm)

Scope: updated running CR with agreements from week1

**Intended outcome Phase 1**: agreeable CR to be used as baseline to capture further agreements from week2

Deadline: Friday, Feb. 28th

**Intended outcome Phase 2**: agreeable CR for plenary approval

Deadline: Friday, March 6th (with possibility to extend to March 10th)

* [AT109e][511][NR-U] 37.340 Running CR (Oppo)

Scope: updated running CR with agreements and review for final plenary submission

Intended outcome: email approval of CR for plenary submission

Deadline: Wednesday, March 4th

* [AT109e][512][NR-U] 38.300 Running CR (Qualcomm)

Scope: updated running CR with agreements and review for final plenary submission

Intended outcome: email approval of CR for plenary submission

Deadline: Friday, March 6th

* [AT109e][513][NR-U] 38.304 Running CR (Qualcomm)

Scope: updated running CR with agreements and review for final plenary submission

Intended outcome: email approval of CR for plenary submission

Deadline: Friday, March 6th

* [AT109e][514][NR-U] 38.321 Running CR (Ericsson)

Scope: updated running CR with agreements and review for final plenary submission

Intended outcome: email approval of CR for plenary submission

Deadline: Friday, March 6th (with possibility to extend to March 10th)

NOTE: updated version will be triggered after some week2 agreements

**Power Saving**

* [AT109e][504][PowSav] PDCCH related open issues (CATT)

Scope:

* + - Identify/Summarize all remaining open issues related to PDCCH-based power saving signal from AI 6.11.2 and seek companies feedback on the need to solve the critical issue and preferred solutions.

Intended outcome:

* + - Set of proposals with full consensus (aim to agree to those over email)
    - Set of proposals with almost full consensus and easy to agree
    - Set of open issues and proposals to postpone to next meeting.
    - Open issues that should no longer be pursued

Deadline for providing comments:

* + - Companies input: Wednesday, Feb. 26th 17:00 CET
    - Rapporteur proposals: Thursday, Feb. 27th 17:00 CET (one day for rapporteur to make conclusions)
    - Comments on proposals’ wording, Monday, March 2nd by 12:00 CET
* [AT109e][505][PowSav] UE assistance open issues (Qualcomm)

Scope:

* + - Identify/Summarize all remaining open issues related to UE assistance open issues from AI 6.11.3 and seek companies feedback on the need to solve the critical issue and preferred solutions.

Intended outcome:

* + - Set of proposals with full consensus (aim to agree to those over email)
    - Set of proposals with almost full consensus and easy to agree
    - Set of open issues and proposals to postpone to next meeting.
    - Open issues that should no longer be pursued

Deadline for providing comments:

* + - Companies input: Wednesday , Feb. 26th 18:00 CET
    - Rapporteur proposals: Thursday, Feb. 27th 6:00 CET (one day for rapporteur to make conclusions)
    - Comments on proposals’ wording: Monday, March 2nd by 17:00 CET
* [AT109e][506][PowSav] RRM relaxation (Huawei)

Scope:

* + - Identify/Summarize all remaining open issues related to RRM relaxation from AI 6.11.4 and seek companies feedback on the need to solve the critical issue and preferred solutions.

Intended outcome:

* + - Set of proposals with full consensus (aim to agree to those over email)
    - Set of proposals with almost full consensus and easy to agree
    - Set of open issues and proposals to postpone to next meeting.
    - Open issues that should no longer be pursued

Deadline for providing comments:

* + - Companies input: Wednesday, Feb. 26th 18:00 CET
    - Rapporteur proposals: Thursday, Feb. 27th 6:00 CET (one day for rapporteur to make conclusions)
    - Comments on proposals’ wording, Monday, March 2nd by 17:00 CET
* [AT109e][515][PowSav] 38.304 Running CR (Vivo)

Scope: updated running CR with agreements from week1 and week2

**Intended outcome Phase 1**: agreeable CR to be used as baseline to capture further agreements from week2

**Deadline**: Friday, Feb. 28th

**Intended outcome Phase 2**: approved CR for plenary submission

Deadline: Friday, March 6th (with possibility to extend to March 10th)

* [AT109e][516][ PowSav] RRC Running CR (Mediatek)

Scope: updated running CR with agreements from week1 and week2

**Intended outcome Phase 1**: agreeable CR to be used as baseline to capture further agreements from week2

**Deadline**: Friday, Feb. 28th

**Intended outcome Phase 2**: approved CR for plenary submission

Deadline: Friday, March 6th (with possibility to extend to March 10th)

* [AT109e][517][PowSav] 37.340 Running CR (Oppo)

Scope: updated running CR with agreements and review for final plenary submission

Intended outcome: email approval of CR for plenary submission

Deadline: Wednesday, March 4th

* [AT109e][518][ PowSav] 38.300 Running CR (Nokia)

Scope: updated running CR with agreements and review for final plenary submission

Intended outcome: email approval of CR for plenary submission

Deadline: Friday, March 6th

* [AT109e][519][NR-U] 38.321 Running CR (Huawei)

Scope: updated running CR with agreements from week1 and week2

**Intended outcome Phase 1**: agreeable CR to be used as baseline to capture further agreements from week2

**Deadline**: Friday, Feb. 28th

**Intended outcome Phase 2**: approved CR for plenary submission

Deadline: Friday, March 6th (with possibility to extend to March 10th)

**2-step RACH**

* [AT109e][507][2-step RA] UP open issues (ZTE)

Scope:

* + - Identify/Summarize all remaining open issues related to UP open issues from AI 6.13.2 and seek companies feedback on the need to solve the critical issue and preferred solutions.

Intended outcome:

* + - Set of proposals with full consensus (aim to agree to those over email)
    - Set of proposals with almost full consensus and easy to agree
    - Set of open issues and proposals to postpone to next meeting.
    - Open issues that should no longer be pursued

Deadline for providing comments:

* + - Companies input: Thursday, Feb. 27th 18:00 CET
    - Rapporteur proposals: Friday, Feb. 28th 18:00 CET (one day for rapporteur to make conclusions)
    - Comments on proposals’ wording, Tuesday, March 3rd by 08:00 CET
* [AT109e][508][2-step RA] CP open issues (Ericsson)

Scope:

* + - Identify/Summarize all remaining open issues related to CP open issues f4rom AI 6.13.3 and related CP issues in 6.13.4 and seek companies feedback on the need to solve the critical issue and preferred solutions.

Intended outcome:

* + - Set of proposals with full consensus (aim to agree to those over email)
    - Set of proposals with almost full consensus and easy to agree
    - Set of open issues and proposals to postpone to next meeting.
    - Open issues that should no longer be pursued

Deadline for providing comments:

* + - Companies input: Thursday, Feb. 27th 18:00 CET
    - Rapporteur proposals: Friday, Feb. 28th 18:00 CET (one day for rapporteur to make conclusions)
    - Comments on proposals’ wording, Tuesday, March 3rd by 08:00 CET
* [AT109e][520][ 2-step RA] RRC Running CR (Ericsson)

Scope: updated running CR with agreements from week1 and week2

**Intended outcome Phase 1**: agreeable CR to be used as baseline to capture further agreements from week2

**Deadline**: Friday, Feb. 28th

**Intended outcome Phase 2**: approved CR for plenary submission

Deadline: Friday, March 6th (with possibility to extend to March 10th)

* [AT109e][518][ 2-step RA ] 38.300 Running CR (Nokia)

Scope: updated running CR with agreements and review for final plenary submission

Intended outcome: email approval of CR for plenary submission

Deadline: Friday, March 6th

* [AT109e][519][ 2-step RA ] 38.321 Running CR (ZTE)

Scope: updated running CR with agreements from week1 and week2

**Intended outcome Phase 1**: agreeable CR to be used as baseline to capture further agreements from week2

**Deadline**: Friday, Feb. 28th

**Intended outcome Phase 2**: approved CR for plenary submission

Deadline: Friday, March 6th (with possibility to extend to March 10th)

NOTE: deadlines are meant to allow at least all regions to have one day to comment (other than weekend) and also give rapporteurs time to update their proposals before the meeting)

## 6.2 NR-based Access to Unlicensed Spectrum

(NR\_unlic-Core; leading WG: RAN1; REL-16; started: Dec 18; target; Mar 20; WID: [RP-191575](file:///C:\Data\3GPP\Extracts\RP-191575%20Revised%20WID%20NR-U.doc); Further prioritization guidance in RP-191581). Documents in this agenda item will be handled in a break out session.

Time budget: 3 TU

Tdoc Limitation: 9 tdocs

### 6.2.1 General

Including incoming LSs, rapporteur inputs, etc.  
Contributions in this AI are reserved for WI rapporteur inputs and/or spec rapporteur inputs and do not count towards the tdoc limits.

Rapporteur of WI can submit a paper on UE capabilities for informational purposes, but it will not be treated during e-meeting

Including outcome of the email discussion [108#38][NR-U] Running 38.331 (Qualcomm)

Including outcome of the email discussion [108#74][NR-U] Running 38.300 (Qualcomm)

Including outcome of the email discussion [108#75][NR-U] Running 38.321 (Ericsson)

Including outcome of the email discussion [108#76][NR-U] Running 38.304 (Qualcomm)

Including outcome of the email discussion [108#77][NR-U] Running 37.340 (Oppo)

**The LSs should only be presented if the presenting companies flag it, otherwise they will be noted.**

[R2-2000018](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000018.zip) Reply LS on PHR reporting for NR-U (R1-1913584; contact: Lenovo) RAN1 LS in Rel-16 NR\_unlic-Core To:RAN2

=> RAN2 will treat this in offline 502

=> Noted

[R2-2000016](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000016.zip) Response LS to RAN2 LS on SFN LSB indication in msg2/msgB (R1-1913582; contact: Qualcomm) RAN1 LS in Rel-16 NR\_unlic-Core, NR\_2step\_RACH-Core To:RAN2

=> Noted

[R2-2000021](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000021.zip) LS on signaling of Q for a serving cell in NR-U (R1-1913592; contact: Nokia) RAN1 LS in Rel-16 NR\_unlic To:RAN2  
=> Noted

**CRs to be endorsed without presentation as baseline. Further agreements will be captured using these CRs as a baseline and companies can continue further discussions over email:**

[R2-2000414](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000414.zip) Running CR to 37.340 for NR-U OPPO CR Rel-16 37.340 16.0.0 0183 - B NR\_unlic-Core

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e (if any) and moved to email discussion to be approved for RAN Plenary submission

=> The CR is revised in R2-2001921

R2-2001921 Running CR to 37.340 for NR-U OPPO CR Rel-16 37.340 16.0.0 0183 1 B NR\_unlic-Core

**Outcome:** email approval

**Deadline**: Wednesday, March 4th

[Offline discussion 511]

[R2-2001254](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001254.zip) Running RRC CR for NR Shared Spectrum Qualcomm Incorporated CR Rel-16 38.331 15.8.0 1477 - B NR\_unlic-Core

=> The CR will be used as a baseline, will be revised to include all new agreements from week1 and moved to email discussion

=> The CR is revised in R2-2001920

[R2-2001254](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001254.zip) Running RRC CR for NR Shared Spectrum Qualcomm Incorporated CR Rel-16 38.331 15.8.0 1477 1 B NR\_unlic-Core

Intended outcome Phase 1: agreeable CR to be used as baseline to capture further agreements from week2

Deadline: Friday, Feb. 28th

Intended outcome Phase 2: agreeable CR for plenary approval

Deadline: Friday, March 6th (with possibility to extend to March 10th)

[Offline discussion 510]

[R2-2001267](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001267.zip) Running Stage-2 CR for NR Shared Spectrum Qualcomm Incorporated CR Rel-16 38.300 16.0.0 0199 - B NR\_unlic-Core

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e(if any) and moved to email discussion to be approved for RAN Plenary submission

=> The CR is revised in R2-2001922

R2-2001922 Running Stage-2 CR for NR Shared Spectrum Qualcomm Incorporated CR Rel-16 38.300 16.0.0 0199 - B NR\_unlic-Core

**Outcome:** email approval

**Deadline**: Friday, March 6th

[Offline discussion 512]

[R2-2001435](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001435.zip) Running Idle/Inactive CR for NR Shared Spectrum Qualcomm Incorporated CR Rel-16 38.304 15.6.0 0149 - B NR\_unlic-Core

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e(if any) and moved to email discussion to be approved for RAN Plenary submission

=> The CR is revised in R2-2001923

R2-2001923 Running Idle/Inactive CR for NR Shared Spectrum Qualcomm Incorporated CR Rel-16 38.304 15.6.0 0149 - B NR\_unlic-Core

**Outcome:** email approval

**Deadline**: Friday, March 6th

[Offline discussion 513]

[R2-2001341](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001341.zip) Running MAC CR for NR-U Ericsson CR Rel-16 38.321 15.8.0 0694 - B NR\_unlic-Core

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e, and moved for email discussion after the last session of week2

=> The CR is revised in R2-2001924

R2-2001924 Running MAC CR for NR-U Ericsson CR Rel-16 38.321 15.8.0 0694 - B NR\_unlic-Core

**Outcome:** email approval

**Deadline**: Friday, March 6th (with possibility to extend to March 10th)

[Offline discussion 514]

**To be treated in the first slot in the week of Feb. 24th**

[R2-2001437](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001437.zip) Control Plane Open Issues for NR Shared Spectrum Qualcomm Incorporated discussion Late

|  |
| --- |
| **Agreements**   1. Keep the current text in RRC running CR for setting of CAPC priorities for SRBs. Remove the default values in the table in 38.331 Section 9.2.1. 2. Introduce per-cell signalling in Q in measObjectNR. 3. For configured uplink grants configured with cg-RetransmissionTimer, a subset of the total HARQ process ID(s) can be configured for CG(s). 4. For configured uplink grants configured with cg-RetransmissionTimer, same HARQ process ID(s) can be configured for different CG(s). 5. The guard bands for a cell are signalled by using a starting index and length for each guard band, only when the network wants to configure it.   *(FFS – move to offline) RAN2 should further discuss the signalling for the cases when there is no guard band, when RAN4 specs should be used, and when/if the UE does not support guard bands.*   1. A single IE for configuring interlaced PUCCH and PUSCH is included in BWP-UplinkCommon. 2. This IE should also be additionally included in BWP-UplinkDedicated. 3. For numPagingMonitoringOccasionPerSSB, support at least the values of 2, 3, and 4. 4. For lbt-FailureInstanceMaxCount, support at least the values of 4, 8, 16, and 32. 5. For lbt-FailureDetectionTimer, support at least the values of 10ms, 20ms, 40ms, 80ms, 160ms, 320ms. 6. For UL, if SDUs from multiple DCCHs (i.e. SRB1 and SRB2) are multiplexed in a MAC PDU, the CAPC of the MAC PDU is the highest priority CAPC of the DCCHs. 7. *(FFS move to offline*) RAN2 should further discuss the ASN.1 modelling of RSSI reporting. 8. RAN2 will respond to the RAN1 LS (R2-2000021) that there is no consensus in RAN2 to use our only spare bit in MIB for signalling of Q. RAN2 is also discussing whether a new MIB is needed or not. 9. The UE can stop paging monitoring if it receives a short message for SI update and PWS. FFS on whether we can set the new bit to zero with SI bit set to 1 |

**For further discussion**

*It is FFS if a new MIB will be introduced for NR-U.*

- Ericsson thinks we should use a new MIB and we don’t want to have a hack for a solution

- Oppo thinks that if the UE cannot differentiate between NR and NR-U we may need the new MIB, but otherwise we don’t need a new MIB

- Huawei thinks that a lot of fields are not useful for NR-U, like cell reselection and PDCCH config in SIB1 and this is enough motivation to introduce a new MIB. Whether we can differentiate, we can learn from the NB-IoT

=> The discussion will continue in the offline email discussion

=> FFS and move to offline (if there are any issues for handling of forbidden TAs specific to shared spectrum based on company contributions)

=> wait for RAN1 conclusion on search space grouping and further discuss the ASN.1 modelling afterwards.

R2-2001919 LS response to RAN1 on MIB signalling of Q

[Offline discussion 509]

[R2-2001343](C:\\Users\\panidx\\Documents\\RAN2\\TSGR2_109_e\\Docs\\R2-2001343.zip) Summary of open issues for NR-U Running 38.321 Ericsson discussion Rel-16 NR\_unlic-Core Late

=> Revised in [R2-2001918](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001918.zip)

[R2-2001918](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001918.zip) Summary of open issues for NR-U Running 38.321 Ericsson discussion Rel-16 NR\_unlic-Core Late

**Agreements:**

1 When cg-RetransmissionTimer is configured and UE receives a CG (re)activation or deactivation, the UE implementation select one corresponding HARQ process.

FFS whether we need to prioritize the MAC CE and transmission/retransmission.

2 Toggle NDI for CG-UCI for new transmissions and not toggle the NDI in the CG-UCI for retransmissions

3 FFS - When RRC BWP switch or DCI BWP switch is received, cancel any triggered consistent LBT failure in this Serving Cell. Need to deal with overlapping case.

4 FFS - The UE is allowed to transmit other UL transmission after?/while? successful RA procedure triggered by UL LBT failure on SpCell.

**For discussion with hope of quick agreement**

Proposal 2 RAN to select one of:

a) RAN2 expect RAN1 to capture the validation of LSBs of SFN, received in the DCI for RAR when RAR window is extended. Add reference in 5.1.4:

1> else if a valid (see TS 38.213 [6]) downlink assignment has been received on the PDCCH for the RA-RNTI and the received TB is successfully decoded:

- Send LS to RAN1 to indicate desired behaviour

b) Validation of LSBs of SFN, received in the DCI for RAR when RAR window is extended, shall be captured in MAC. Align with the 2-step RACH solution. Add validation in 5.1.4:

1> else if a downlink assignment has been received on the PDCCH for the RA-RNTI and it includes the two LSB bits of the SFN corresponding to the PRACH occasion used to transmit the Random Access Preamble and the received TB is successfully decoded

*=> FFS how to handle this (offline 501)*

*2. What RAN2 has to do and whether we do option a) or b) and what if anything we need to tell RAN1*

Proposal 3

*RAN2 to select one of:*

*a) Reuse the harq-procID-offset field introduced in the IIOT WI. The available HP IDs for a CG config, when cg-RetransmissionTimer is configured, is 0 + HPID-offset, 1 + HPID-offset, …, nrofHARQ-Processes-1 + HPID-offset where if harq-procID-offset is configured HPID-offset is equal to harq-procID-offset, and HPID-offset is zero otherwise.*

*b) Introduce a new field cg-HARQ-Processes in ConfiguredGrantConfig. The available HARQ process IDs for a CG config, when cg-RetransmissionTimer is configured, is given by cg-HARQ-Processes.*

*=> FFS*

*Proposal 21 In an SpCell, do not transmit in the uplink, besides as part of the RA procedure, when consistent LBT failure has been triggered and not cancelled in the SpCell.*

- Samsung things that we have this situation in Rel-15 and we didn’t do anything.

- Lenovo clarifies that until after the successful RA the eNB doesn’t know which UE is transmitting and therefore any UL transmissions will be interference. We missed this in Rel-15 so we should fix it for rel-16

*=> FFS*

Proposal 22 RAN2 to select:

a) When SUL is configured, autonomous BWP switch in SpCell due to consistent LBT failure shall select either NUL or SUL for RA as in Rel-15.

b) When SUL is configured, monitor consistent LBT failures separately in NUL and SUL and do BWP switch in the respective carrier if consistent LBT failure is triggered.

- Huawei thinks b) is more appropriate. Interdigital confirms this is an issue and b) is appropriate.

- Nokia thinks this is an optimization.

- ZTE also thinks this is an optimization and is not even sure if it useful for NR-U.

=> *FFS*

### 6.2.2 User plane

**To be discussed over email officially kicked off during e-meeting week (as offline email discussion) and treated the second slot, Week of March 2nd:**

[R2-2001911](C:\\Users\\panidx\\Documents\\RAN2\\TSGR2_109_e\\Docs\\R2-2001911.zip) NR-U UP Summary for RACH and UL LBT InterDigital discussion Rel-16 NR\_unlic-Core

[Offline discussion 501]

[R2-2002029](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2002029.zip) NR-U UP Summary for CG and Others AI OPPO discussion Rel-16 NR\_unlic-Core

[Offline discussion 502]

#### 6.2.2.1 RACH

Aspects of 2/4 step RACH procedure specific to unlicensed operation; including supporting extended RAR window, and LBT impact.

ONLY NEW CRITICAL OPEN Issues that are not identified in email discussions. Contributions should NOT discuss open issues in the email discussion

**This will not be treated**

[R2-2000145](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000145.zip) Further Consideration on RACH Procedure in NR-U vivo discussion [R2-1914370](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1914370.zip)

[R2-2000146](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000146.zip) Issue on the Autonomous BWP Awitching in NR-U vivo discussion [R2-1914366](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1914366.zip)

[R2-2000147](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000147.zip) LBT Impacts on 2-step RACH vivo discussion [R2-1914368](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1914368.zip)

[R2-2000416](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000416.zip) 2-step RACH for NR-U OPPO discussion Rel-16 NR\_unlic-Core

[R2-2000771](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000771.zip) RA procedure considering SSBs with QCL relationship Fujitsu discussion Rel-16 NR\_unlic-Core

[R2-2000851](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000851.zip) MSGA PUSCH LBT failure and PDCCH decoding Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_unlic-Core

[R2-2000958](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000958.zip) Remaining issue on 2-step random access in NRU Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2001208](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001208.zip) Remaining issues on RACH Ericsson discussion NR\_unlic-Core

[R2-2001209](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001209.zip) Gapless msgA transmissions in NR-U Ericsson discussion NR\_unlic-Core

[R2-2001449](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001449.zip) Additional opportunity for Msg1 in 4-step RACH LG Electronics Polska discussion Rel-16 NR\_unlic-Core [R2-1915920](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915920.zip)

[R2-2001606](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001606.zip) Consideration for C-RNTI monitoring in NR-U LG Electronics Polska discussion Rel-16 NR\_unlic-Core

#### 6.2.2.2 Handling UL LBT failures

Including detection, recovery, and reporting a consistent UL LBT failure

ONLY NEW CRITICAL OPEN Issues that are not identified in email discussions. Contributions should NOT discuss open issues in the email discussion

**This will not be treated**

[R2-2000148](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000148.zip) Remaining Issues of UL LBT Failure vivo discussion [R2-1914367](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1914367.zip)

[R2-2000415](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000415.zip) Remaining issues on consistent uplink LBT failure for NR-U OPPO discussion Rel-16 NR\_unlic-Core

[R2-2000449](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000449.zip) Remaining issues on UL LBT failures handling Intel Corporation discussion Rel-16 NR\_unlic-Core

[R2-2000534](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000534.zip) LBT failure handling considering SUL aspect Samsung discussion Rel-16 NR\_unlic-Core

[R2-2000563](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000563.zip) LBT Failures Handling in Non-Connected State Spreadtrum Communications discussion [R2-1915015](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915015.zip)

[R2-2000603](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000603.zip) SpCell LBT Failure MAC CE Delivery Apple, vivo discussion Rel-16 NR\_unlic-Core

[R2-2000737](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000737.zip) Handling of consistent UL LBT failures during HO ITRI discussion NR\_unlic-Core [R2-1913064](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1913064.zip)

[R2-2000772](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000772.zip) [Eri10] SR resources for consistent LBT failure Fujitsu discussion Rel-16 NR\_unlic-Core

[R2-2000822](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000822.zip) UE behavior upon consistent LBT failure Lenovo, Motorola Mobility discussion Rel-16 NR\_unlic-Core

[R2-2000840](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000840.zip) Remaining issues on consistent LBT failures and BWP switching MediaTek Inc. discussion Rel-16 NR\_unlic-Core

[R2-2000904](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000904.zip) On counting the LBT failure of a BWP with multiple sub-bands CMCC discussion Rel-16 [R2-1915197](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915197.zip)

[R2-2000941](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000941.zip) Uplink transmission upon detection of LBT failure Nokia, Nokia Shanghai Bell discussion Rel-15 NR\_unlic-Core

[R2-2000957](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000957.zip) Remaining issue on handling UL LBT failure Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2000963](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000963.zip) Remaining issues on LBT failure MAC CE Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2000999](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000999.zip) The remaining issues for UL LBT failure ZTE Corporation, Sanechips discussion Rel-16

[R2-2001207](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001207.zip) Handling consistent UL LBT failures Ericsson discussion NR\_unlic-Core

#### 6.2.2.3 Configured grant operation

Including HARQ aspects, configuration aspects, multiple active configured grants, and conflicts between dynamic and configured grants (NR-U specific).

ONLY NEW CRITICAL OPEN Issues that are not identified in email discussions. Contributions should NOT discuss open issues in the email discussion

**This will not be treated**

[R2-2000417](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000417.zip) Remaining issues on NR-U configured grant OPPO discussion Rel-16 NR\_unlic-Core Late

[R2-2000821](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000821.zip) HARQ process configuration for configured grants Lenovo, Motorola Mobility discussion Rel-16 NR\_unlic-Core

[R2-2000841](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000841.zip) Issues on retransmissions across different configured grant configurations MediaTek Inc. discussion Rel-16 NR\_unlic-Core

[R2-2000959](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000959.zip) Remaining issue on configured grant Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2001205](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001205.zip) Configured Grant remaining issues Ericsson discussion NR\_unlic-Core

[R2-2001206](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001206.zip) Channel access priority for Configured Grant Ericsson discussion NR\_unlic-Core

[R2-2001442](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001442.zip) Consideration of delayed CG confirmation LG Electronics Polska discussion Rel-16 NR\_unlic-Core

#### 6.2.2.4 Other

Includes wideband operation aspects, HARQ, SR and PHR

ONLY NEW CRITICAL OPEN Issues that are not identified in email discussions. Contributions should NOT discuss open issues in the email discussion

**This will not be treated**

[R2-2000149](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000149.zip) Remaining Issues on CAPC Selection for Configured Grant vivo discussion

[R2-2000154](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000154.zip) Consideration on SR transmission colliding with PUSCH transmission Xiaomi Communications discussion Rel-16 [R2-1915956](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915956.zip) Late

[R2-2000172](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000172.zip) Consideration on SR transmission colliding with PUSCH transmission Xiaomi Communications discussion Rel-16 [R2-1915956](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915956.zip) Late

[R2-2000173](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000173.zip) Consideration on SR transmission colliding with PUSCH transmission Xiaomi Communications discussion Rel-16 [R2-1915956](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915956.zip)

[R2-2000176](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000176.zip) Remaining issues of CAPC Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2000535](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000535.zip) Applicability of NR-U features to licensed carrier Samsung discussion Rel-16 NR\_unlic-Core [R2-1915222](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915222.zip)

[R2-2000669](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000669.zip) LBT failure measurement report handling Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_unlic-Core

[R2-2000838](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000838.zip) PHR for NR-U Lenovo, Motorola Mobility discussion Rel-16 NR\_unlic-Core

[R2-2000842](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000842.zip) On PHR and autonomous retransmissions MediaTek Inc. discussion Rel-16 NR\_unlic-Core [R2-1913262](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1913262.zip)

[R2-2000960](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000960.zip) PHR reporting for NR-U Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2000961](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000961.zip) Reply LS on PHR report Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2000962](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000962.zip) Disucssion PDCCH group switching Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2001094](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001094.zip) CAPC selection for UL transmissions Intel Corporation discussion Rel-16 NR\_unlic-Core

[R2-2001108](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001108.zip) Remaining CAPC aspects for CG when SRB is multiplexed NEC Telecom MODUS Ltd. discussion

[R2-2001204](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001204.zip) Remaining issue on PHR Ericsson discussion NR\_unlic-Core

[R2-2001450](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001450.zip) Dynamic DL opportunity enhancement based on channel busy level in NR-U LG Electronics Polska discussion Rel-16 NR\_unlic-Core [R2-1915921](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915921.zip)

[R2-2001451](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001451.zip) MAC impacts of multiple CCAs in wide band operation LG Electronics Polska discussion Rel-16 NR\_unlic-Core [R2-1916153](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1916153.zip)

### 6.2.3 Control plane

**To be discussed over email (as offline email discussion) and treated the second slot, Week of March 2nd.**

[R2-2002022](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2002022.zip) NR-U Control Plan Summary Qualcomm Incorporated discussion Rel-16 NR\_unlic-Core

[Offline discussion 503]

#### 6.2.3.1 Mobility and RRM

Including camping and cell (re)-selection. Focus should be on idle and inactive mode mobility.  For connected mode  mobility solutions to be covered by the NR Mobility Enh WI are not to be discussed.

Note RP-191581: RRM Measurements beyond currently agreed ones have lower priority.

ONLY NEW CRITICAL OPEN Issues that are not identified in email discussions. Contributions should NOT discuss open issues in the email discussion

**This will not be treated**

[R2-2000151](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000151.zip) Short Message for Stopping Paging Monitoring in NR-U vivo discussion

[R2-2000336](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000336.zip) Remaining issues on Paging Ericsson discussion NR\_unlic-Core

[R2-2000337](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000337.zip) RRM in NR-U Ericsson discussion NR\_unlic-Core

[R2-2000403](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000403.zip) Handling of SIB1 decoding error Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_unlic-Core

[R2-2000405](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000405.zip) On RLM and RLF Issues in NR-U Mediatek Inc. discussion

[R2-2000670](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000670.zip) LS on LBT failure measurement report handling Nokia, Nokia Shanghai Bell LS out Rel-16 NR\_unlic-Core To:RAN4

[R2-2001546](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001546.zip) Cell selection after consecutive UL LBT failures LG Electronics Inc. discussion

[R2-2001547](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001547.zip) Support of conditional handover for NR-U LG Electronics Inc. discussion

#### 6.2.3.2 Other

Other control plane stage-3 aspects including system information. Note RP-191581: Enhancements for System Information has lower priority

ONLY NEW CRITICAL OPEN Issues that are not identified in email discussions. Contributions should NOT discuss open issues in the email discussion

RLM/RLF will not be treated in this meeting

**This will not be treated**

[R2-2000150](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000150.zip) UE Capability for NR-U Support vivo draftCR Rel-16 38.306 15.8.0 NR\_unlic

[R2-2000338](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000338.zip) Signaling of Q in NR-U Ericsson discussion

[R2-2000404](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000404.zip) Including RSSI and Channel Occupancy in NR-U UE Capabilities Mediatek Inc. draftCR Rel-16 38.306 15.8.0 C NR\_unlic, NR\_unlic-Core [R2-1914584](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1914584.zip)

[R2-2000418](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000418.zip) Stopping criteria for paging monitoring OPPO discussion Rel-16 NR\_unlic-Core

[R2-2000442](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000442.zip) UE Capabilities for Measurements in NR-U Mediatek Inc. discussion

[R2-2000671](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000671.zip) using spare from SIB1 Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_unlic-Core

[R2-2000672](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000672.zip) Q values per cell and useInterlacePUCCH coding Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_unlic-Core

[R2-2000673](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000673.zip) intraCellGuardBand coding Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_unlic-Core

[R2-2000905](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000905.zip) Further enhancement of reporting for NR-U cell reselection CMCC discussion Rel-16

[R2-2000964](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000964.zip) Discussion on the remaining issues in RRC signalling Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2001422](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001422.zip) SUL Operating over NR-U Samsung discussion NR\_unlic-Core

[R2-2001432](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001432.zip) On Indicating LBT Failure for NR-U Samsung discussion NR\_unlic-Core

[R2-2001469](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001469.zip) Enhancements to MIB transmission OPPO discussion Rel-16 NR\_unlic-Core

[R2-2001548](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001548.zip) Stopping condition for paging monitoring LG Electronics Inc. discussion

[R2-2001549](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001549.zip) RLMRLF in NR-U LG Electronics Inc. discussion

## 6.11 UE Power Saving in NR

(NR\_UE\_pow\_sav-Core; leading WG: RAN1; REL-16; started: Mar 19; target; Mar 20; WID: [RP-191607](file:///C:\Data\3GPP\TSGR\TSGR_84\docs\RP-191607.zip), See also guidence in RP-192326). Documents in this agenda item will be handled in a break out session. NOTE: "SCell dormancy" like behaviour will be discussed in MR-DC WI.

Time budget: 1 TU

Tdoc Limitation: 4 tdocs

### 6.11.1 Organisational

Including incoming LSs, running TS, rapporteur inputs, etc

NOTE: any stage 3 identified issues with MIMO configurations should be provided to 38.331 rapporteur (Mediatek)

Contributions in this AI are reserved for WI rapporteur inputs and/or spec rapporteur inputs and do not count towards the tdoc limits.

38.306 can be submitted for informational purpose by rapporteur (Intel), but it will not be treated this meeting

Including outcome of the email discussion [108#39][Power Saving] Running 38.331 (Mediatek)

Including outcome of the email discussion [108#78][Power Saving] Running 38.321 (Huawei)

Including outcome of the email discussion [108#79][Power Saving] Running 38.304 (Vivo)

Including outcome of the email discussion [108#80][Power Saving] Running 38.300 (CATT)

Including outcome of the email discussion [108#81][Power Saving] Running 37.340 (Oppo)

**LS to be treated only if the contact company flags it for presentation. Otherwise, it is directly Noted**

[R2-2000017](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000017.zip) LS reply to RAN2 on WUS for short DRX cycle (R1-1913583; contact: CATT) RAN1 LS in Rel-16 NR\_UE\_pow\_sav-Core To:RAN2

[R2-2000098](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000098.zip) LS reply on CSI/SRS reporting (R1-1913480; contact: Vivo) RAN1 LS in Rel-16 NR\_UE\_pow\_sav-Core To:RAN2 Cc:RAN4

**The following CRs should be endorsed as baseline from email discussion and used to capture the additional agreements from the e-meeting**

[R2-2000364](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000364.zip) Running 38.304 CR on UE Power saving in NR vivo (rapporteur) CR Rel-16 38.304 15.6.0 0145 - B FS\_NR\_UE\_pow\_sav

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e, and moved for email discussion

[R2-2000411](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000411.zip) Running CR to 37.340 for power saving OPPO CR Rel-16 37.340 16.0.0 0184 - B NR\_UE\_pow\_sav-Core

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e, and moved for email discussion

[R2-2000843](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000843.zip) Running CR for 38.331 for Power Savings MediaTek Inc. CR Rel-16 38.331 15.8.0 1469 - B FS\_NR\_UE\_pow\_sav [R2-1915548](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915548.zip) Late

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e, and moved for email discussion

[R2-2000888](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000888.zip) Introduction of UE Power Saving in NR CATT CR Rel-16 38.300 16.0.0 0193 - B NR\_UE\_pow\_sav-Core

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e, and moved for email discussion

[R2-2001615](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001615.zip) Running CR for Introduction of Rel-16 NR UE power saving in TS 38.321 Huawei CR Rel-16 38.321 15.8.0 0699 - B NR\_UE\_pow\_sav-Core Late

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e, and moved for email discussion

**The following email discussions will be treated during the first slot of e-meetings**

[R2-2000844](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000844.zip) Email discussion summary on running 38.331 CR for Power Saving MediaTek Inc. discussion Rel-16 FS\_NR\_UE\_pow\_sav Late

=> Revised in [R2-2001912](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001912.zip)

[R2-2001912](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001912.zip) Email discussion summary on running 38.331 CR for Power Saving MediaTek Inc. discussion Rel-16 FS\_NR\_UE\_pow\_sav Late

**To be agreed:**

Proposal 1: The UE assistance IE to transition out of connected mode is named ‘releasePreference’

Proposal 2: The UE assistance configuration for power savings is released during the RRC resume procedure.

Proposal 10: A UE can report a preference of 0MHz aggregated bandwidth for power savings

Proposal 12: The reported long DRX-cycle preference is a multiple of the reported short DRX-cycle preference

Proposal 13: The search space for DCP be configured independent of search spaces for Rel-15 DCIs

Proposal 14: The search space for DCP be configured such that it is also used to monitor other Rel-15 DCIs

Proposal 15: The prohibit timer for UE assistance on DRX, aggregated bandwidth, number of cell, number of MIMO layers, releasePreference and minimum scheduling offset for power savings can be configured up to 30s.

FFS if an additional longer value is needed releasePreference (i.e. 600s)?

**To be agreed with some discussions hopefully:**

Proposal 6: All fields in the DRX-Preference IE in the UE assistance information message are optional fields.

Proposal 8: All fields in the MinSchedulingOffsetPreference IE in the UE assistance information message are optional fields.

*(Alternative to P6) Proposal 7: preferredDRX-ShortCycle and preferredDRX-ShortCycleTimer in the UE assistance information message are optional fields – if we can’t agree to 6*

Proposal 3: If a UE wants to cancel an earlier indicated preference to leave connected mode, the UE can transmit a release preference IE with a connected mode state preference, when not prevented by a prohibit timer

Proposal 11: A UE can report a preference of one layer as the minimum number of preferred MIMO layers for the downlink.

**Requires some discussion**

Proposal 4: The reported values of UE assistance on reduced bandwidth, cells and MIMO layers for power savings can range up to the corresponding value in the UE’s capability, and is independent of the current active configuration.

Proposal 5: A UE can report a preferred aggregated bandwidth for a frequency range, even if it is not configured with serving cells on that frequency range.

Proposal 9: The releasePreference IE optionally contains a releaseIndication field (connected or out of connected) and a preferredRRC-State field (idle or inactive).

[R2-2001616](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001616.zip) Report of email discussion [108#78][Power Saving] 38.321 open issues Huawei report Rel-16 NR\_UE\_pow\_sav-Core

NOTES from session chair – excellent proposals with summary of supporting companies at the end 😊

**To be agreed**

Proposal 1: RAN2 to confirm the MAC-PHY modelling in the MAC running CR for DCP.

Send LS to RAN1 to inform the RAN2 understanding?. (8-10/12)

Proposal 3: RAN2 does not expect to discuss partial overlapping for DCP monitoring and will following RAN1 CR on this issue. (10/12)

Proposal 5: No special handling for DCP monitoring in case DCP is overlapped with HARQ-RTT-timer, i.e. DCP needs to be monitored. (9/11)

Proposal 6: The 4ms DRX ambiguous period introduced in Rel-15 does not apply to DCP.

To be discussed and agreed

Proposal 8: [FFS]: ps-TransmitPeriodicCSI-r16 and ps-TransmitPeriodicL1-RSRP-r16 can be configured independently. (8/12)

Proposal 7: [FFS]: ps-TransmitPeriodicCSI-r16 covers periodic CSI reporting apart from L1-RSRP related CSI (i.e. cri-RSRP and ssb-Index-RSRP). (8/12)

FFS if both can be set to TRUE – to confirm with RAN1

Proposal 4: [FFS]: DCP is not monitored in case DCP is overlapped with RAR window. onDuration timer for the next DRX cycle is started (i.e. apply existing monitoring rules). (7/11)

**Postpone until next meeting**

[FFS]: Confirm that short DRX cycle is not supported for DCP. Remove corresponding Editor’s Note in MAC running CR. (8/12)

[R2-2000365](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000365.zip) Report of EmailDisc-79 on open issues for RRM measurement relaxation vivo (rapporteur) discussion Rel-16 FS\_NR\_UE\_pow\_sav

=> Revised in [R2-2002100](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2002100.zip)

[R2-2002100](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2002100.zip) Report of EmailDisc-79 on open issues for RRM measurement relaxation vivo (rapporteur) discussion Rel-16 FS\_NR\_UE\_pow\_sav

**To be agreed**

Proposal 2: The network broadcasts corresponding parameters of relaxation triggering criteria to implicitly enable RRM measurement relaxation feature.

Proposal 5: RAN2 to discuss whether the measurement relaxation for high priority frequency indicated by highPriorityMeasRelax is controlled by the triggering criteria for measurement relaxation and check with RAN4 how RAN4 will make use of it.

Proposal 6: A single indication (i.e. highPriorityMeasRelax) is applied to all high priority frequencies.

Proposal 8: When network configures the parameters of both low mobility and not-at-cell-edge criteria. UE can perform measurement relaxation according one of the following options, which is indicated by the network:

- Option a: UE uses both low mobility criterion and not-at-cell-edge criteria, i.e. UE can perform relaxation only when both criteria are fulfilled. And detailed relaxation behaviour is up to RAN4 discussion and decision;

- Option b: UE uses either low mobility criterion or not-at cell-edge criterion, i.e. UE can perform relaxation when either low mobility or not-at-cell-edge criterion is fulfilled. And detailed relaxation behaviours are same as case that network only configures low mobility or not-at-cell-edge criterion;

Proposal 13: The values of parameter SSearchDeltaP can reuse the LTE range of values, i.e. 6, 9, 12, 15 dB.

Proposal 14: The infinity value for parameter SSearchDeltaP is not needed.

Proposal 17: When network configures both RSRP and RSRQ thresholds for not-at-cell-edge criterion, UE can perform relaxation only when both RSRP and RSRQ based criteria are met.

Proposal 18: Srxlev/Squal (Cell selection RX level value (dB)) is used to compare with threshold SsearchThresholdP/ SsearchThresholdQ. The corresponding text has been updated in running 38.304 CR.

Proposal 19: The threshold SsearchThresholdP/ SsearchThresholdQ reuse the value range of ReselectionThreshold/ReselectionThresholdQ or RSRP-Range/RSRQ-Range.

Observation Proposal 23: How to perform RRM measurement relaxation should be discussed/decided in RAN4.

Proposal 22: An LS is sent to RAN4 on RAN2 conclusions for the RRM measurement relaxation and ask RAN4 to discuss the measurement relaxation approach(es).

**To discuss and agree**

Proposal 3: Per-frequency configurationindication should be is supported for RRM measurement relaxation. FFS on per-FR or per-frequency.

Proposal 10: The parameter SrxlevRef is set according to the LTE mechanism as captured in current running 38.304 CR for power saving.

Proposal 16: Define the time interval for measurement relaxation since last measurement for cell reselection as in LTE, the value range for the time interval is FFS, and sent it to RAN4.

**Nice to agree but the RRC rapporteur should be able to use this as a baseline and companies can provide further views over email**

*With consensus*

Proposal 1: The terminology of relaxed measurement (i.e. option 2) is used for RRM measurement relaxation in NR.

Proposal 4: The IE highPriorityMeasRelax is defined as an optional fieldIE with the value of “ENUMERATED {true}” to configure higher priority frequencies can be relaxed.

Proposal 17: The parameter SSearchDeltaP is optional and default value can be 6dB.

*With consensus almost existing*

Proposal 7: If the indication highPriorityMeasRelax is optional and when it is not present, the legacy behaviour should be followed, i.e. no measurement relaxation is performed on the high priority frequency.

Proposal 9: If proposal 8 is agreeable, this “and/or” indication is mandatory if network configures the parameters of both low mobility and not-at-cell-edge.

Proposal 12: The parameter TSearchDeltaP is optional, and the default value can be 1 minute or 60s.

Proposal 20: Whether the parameter SsearchThresholdP/SsearchThresholdQ is optional or mandatory if RRM measurement relaxation is supported can be discussed during the meeting after the decision on Proposal 2.

**FFS – postpone no discussion (move to offline)**

Proposal 11: RAN2 have a short discussion on the detailed values and the granularity for parameter TSearchDeltaP:

- Option 1: Values in number of minutes, e.g. 0.5min, 1 min, 2 min, 3min, 4 min and 5 min;

- Option 2: Values in number of seconds, e.g. 5s, 10s, 20s, 30s, 60s, 120s, 180s, 240s, and 300s.

Proposal 21: Whether UE is permitted to perform measurement relaxation on a given frequency when the UE is configured to perform early measurement for fast CA/DC setup on that frequency can be discussed during the e-meeting.

**Response LSs should be agreed by email discussion if we decided they are needed**

[R2-2000366](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000366.zip) Draft LS to RAN4 on RRM measurement relaxation in power saving vivo LS out Rel-16 FS\_NR\_UE\_pow\_sav To:RAN4

[R2-2001617](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001617.zip) [Draft] LS on MAC-PHY modelling for DCP Huawei LS out Rel-16 NR\_UE\_pow\_sav-Core To:RAN WG1 Late

[R2-2000452](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000452.zip) UE capabilities for Rel-16 UE power saving WI Intel Corporation discussion Rel-16 NR\_UE\_pow\_sav

[R2-2000453](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000453.zip) UE capabilities for Rel-16 UE power saving WI Intel Corporation CR Rel-16 38.306 15.8.0 0231 - B NR\_UE\_pow\_sav

### 6.11.2 PDCCH-based power saving signals/channel Additional stage-3 RAN2 aspects

ONLY NEW CRITICAL OPEN Issues that are not identified in email discussions. Contributions should not discuss open issues in the email discussion.

**To be discussed over email officially kicked off during e-meeting week (as offline email discussion) and treated the second slot, Week of March 2nd:**

[R2-2001913](C:\\Users\\panidx\\Documents\\RAN2\\TSGR2_109_e\\Docs\\R2-2001913.zip) Summary of open issues for PDCCH CATT

[Offline discussion 504]

**This will not be treated**

[R2-2000253](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000253.zip) Contributions summary on further impacts of DCP CATT discussion Rel-16 NR\_UE\_pow\_sav-Core Late

[R2-2000254](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000254.zip) New issue on CSI reporting with DCP CATT discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2000349](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000349.zip) Open issues DCP Ericsson discussion Rel-16 NR\_newRAT-Core

[R2-2000367](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000367.zip) PDCCH-WUS not applicable for short DRX cycle vivo discussion Rel-16 FS\_NR\_UE\_pow\_sav

[R2-2000368](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000368.zip) WUS impact on CSI reporting vivo discussion Rel-16 FS\_NR\_UE\_pow\_sav

[R2-2000412](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000412.zip) Remaining issues on DCP OPPO discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2000413](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000413.zip) Impacts of power saivng signalling on CSI reporting OPPO discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2000450](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000450.zip) Open issues of DCP feature Intel Corporation discussion Rel-16 NR\_UE\_pow\_sav

[R2-2000584](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000584.zip) PDCCH-WUS Mechanism Apple discussion Rel-16 NR\_UE\_pow\_sav-Core [R2-1915924](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915924.zip)

[R2-2000599](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000599.zip) PDCCH-WUS and Short DRX Cycle Apple discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2000665](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000665.zip) Discussion on introduction of search space for the DCP ZTE Corporation, Sanechips discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2000666](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000666.zip) Introduction of search space for the DCP in TS38.331 ZTE Corporation, Sanechips CR Rel-16 38.331 15.8.0 B NR\_UE\_pow\_sav-Core

[R2-2000811](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000811.zip) Discussion on PDCCH-WUS missing problems during handover Xiaomi Communications discussion

[R2-2001037](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001037.zip) On DRX ambiguous period Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2001038](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001038.zip) On DCP monitoring and CSI/SRS transmission Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2001040](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001040.zip) On short DRX cycle applicability for DCP Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2001300](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001300.zip) Consideration on Short DRX cycle on DCP LG Electronics Inc. discussion NR\_UE\_pow\_sav-Core

[R2-2001463](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001463.zip) Remaining issues on WUS signal for Power Saving ZTE Corporation, Sanechips discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2001482](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001482.zip) Wakeup signaling with DRX groups Qualcomm Inc, Samsung discussion Rel-16

### 6.11.3 UE assistance

Stage 3 details of reportings mechanisms for a UE to 1) indicate its preference of transitioning out of RRC\_CONNECTED state 2) c-DRX and 3) SCell

ONLY NEW CRITICAL OPEN Issues that are not identified in email discussions. Contributions should not discuss open issues in the email discussion

**To be discussed over email officially kicked off during e-meeting week (as offline email discussion) and treated the second slot, Week of March 2nd:**

[R2-2001914](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001914.zip) Summary of open issues for UE assistance Qualcomm

[Offline discussion 505]

**This will not be treated**

[R2-2000255](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000255.zip) Reporting UE Assistance Info to NR SN CATT discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2000350](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000350.zip) Open issues for UE assistance Ericsson discussion Rel-16 NR\_newRAT-Core

[R2-2000351](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000351.zip) Open issues for MR-DC scenarios Ericsson discussion Rel-16 NR\_newRAT-Core

[R2-2000369](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000369.zip) UE assistance information for power saving vivo discussion Rel-16 FS\_NR\_UE\_pow\_sav

[R2-2000451](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000451.zip) Open issues of new UE assistance information for PWS Intel Corporation discussion Rel-16 NR\_UE\_pow\_sav

[R2-2000585](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000585.zip) UE Assistance Information for MR-DC Apple discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2000596](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000596.zip) UE Assistance Information for Scell Apple discussion Rel-16 NR\_UE\_pow\_sav-Core [R2-1915926](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915926.zip)

[R2-2000649](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000649.zip) Remaining open issues on UE assistance information OPPO discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2000826](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000826.zip) Power Saving UE assistance information Sony discussion Rel-16 NR\_UE\_pow\_sav-Core [R2-1915232](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915232.zip) Withdrawn

[R2-2000869](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000869.zip) Power Saving UE assistance information Sony Europe B.V. discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2001301](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001301.zip) Remaining issue on UE assistance LG Electronics Inc. discussion NR\_UE\_pow\_sav-Core

[R2-2001330](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001330.zip) Remaining issues on UE assistance information Huawei, HiSilicon discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2001483](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001483.zip) Remaining issues on UE Assistancec Information Qualcomm Inc discussion Rel-16

[R2-2002025](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2002025.zip) Summary of open issues on UE assistance Qualcomm discussion Rel-16 NR\_UE\_pow\_sav-Core

### 6.11.6 RRM measurement relaxation

Contributions should focus on additional enhancements to LTE relaxed monitoring criteria that are specific to NR and whether neighbour cell RSRP should also be considered in cell-edge criterial.

Discuss type of RRM measurement relaxation by allowing measurements with longer intervals, and/or by reducing the number of cells/carriers to be measured. NOTE: this topic should be considered together with RAN4.

ONLY NEW CRITICAL OPEN Issues that are not identified in email discussions. Contributions should not discuss open issues in the email discussion

**To be discussed over email officially kicked off during e-meeting week (as offline email discussion) and treated the second slot, Week of March 2nd:**

[R2-2001915](C:\\Users\\panidx\\Documents\\RAN2\\TSGR2_109_e\\Docs\\R2-2001915.zip) Summary of RRM measurement relaxation open issues Huawei

[Offline discussion 506]

**This will not be treated**

[R2-2000256](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000256.zip) Way forward on measurement relaxation with high priority frequencies CATT discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2000312](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000312.zip) Configurations for RRM Measurement Relaxation in NR MediaTek Inc. discussion

[R2-2000352](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000352.zip) Open issues RRM measurement relaxation Ericsson discussion Rel-16 NR\_newRAT-Core

[R2-2000370](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000370.zip) UE Power Consumption Reduction in RRM Measurement vivo discussion Rel-16 FS\_NR\_UE\_pow\_sav [R2-1914694](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1914694.zip)

[R2-2000595](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000595.zip) Open Issues of RRM Measurement Relaxation Apple discussion Rel-16 NR\_UE\_pow\_sav

[R2-2000827](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000827.zip) UE power saving for inter frequency measurements Sony discussion Rel-16 NR\_UE\_pow\_sav-Core [R2-1915233](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915233.zip)

[R2-2000913](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000913.zip) Discussion on power saving for inter-frequency measurements CMCC discussion NR\_UE\_pow\_sav-Core [R2-1915210](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915210.zip)

[R2-2001039](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001039.zip) On RRM measurement relaxation Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2001063](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001063.zip) On SrxlevRef adaptation in relaxed monitoring Huawei, HiSilicon discussion Rel-16 NR\_UE\_pow\_sav-Core [R2-1915529](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915529.zip)

[R2-2001064](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001064.zip) Reducing the number of neighbour cells/carriers to measure Huawei, HiSilicon discussion Rel-16 NR\_UE\_pow\_sav-Core [R2-1915530](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915530.zip)

[R2-2001401](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001401.zip) Coexistence issues of measurement relaxation and early measurements LG Electronics, Ericsson, MediaTek discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2001402](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001402.zip) Per-frequency measurement relaxation based on neighbour cell quality LG Electronics discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2001577](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001577.zip) RRM measurement relaxation Samsung discussion NR\_UE\_pow\_sav-Core

[R2-2001643](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001643.zip) On the frequency selection for RRM relaxation Samsung R&D Institute UK discussion

## 6.13 2-step RACH for NR

(NR\_2step\_RACH-Core; leading WG: RAN1; REL-16; started: Dec 18; target; Mar 20; WID: [RP-192330](file:///C:\Data\3GPP\Extracts\RP-190711%20Revised%20work%20item%20proposal%202%20step%20RACH%20for%20NR.docx)). Documents in this agenda item will be handled in a break out session

Time budget: 1 TU

Tdoc Limitation: 6 tdocs

### 6.13.1 General

Running CRs, Incoming LSs, Contributions in this AI are restricted for WI rapporteur inputs and/or spec rapporteur inputs and do not count towards the tdoc limits.

Including outcome of the email discussion [108#40][2-step RA] Running 38.331 (Ericsson)

Including outcome of the email discussion [108#82][2-step RA] Running 38.321 (ZTE)

Including outcome of the email discussion [108#83][2-step RA] Running 38.300 (Nokia)

**The following CRs should be endorsed as baseline from the email discussion and used to capture the additional agreements from the e-meeting**

[R2-2000942](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000942.zip) Stage-2 running CR for 2-step RACH Nokia (rapporteur), Nokia Shanghai Bell CR Rel-16 38.300 16.0.0 0197 - B NR\_2step\_RACH-Core

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e, and moved for email discussion

[R2-2000997](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000997.zip) Running MAC CR for 2-step RACH ZTE Corporation (email discussion rapporteur) CR Rel-16 38.321 15.8.0 0692 - B NR\_2step\_RACH-Core, NR\_unlic-Core, TEI16

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e, and moved for email discussion

[R2-2001217](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001217.zip) Draft CR 2-step RA 38.331 Running CR Ericsson (Email disc rapporteur) draftCR Rel-16 38.331 15.8.0 B NR\_2step\_RACH-Core

=> The CR will be used as a baseline, will be revised to include all new agreements from RAN2#109e, and moved for email discussion

**The following email discussions will be treated during the first slot of e-meeting**s

[R2-2000995](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000995.zip) Summary of open issues in MAC running CR - Updated ZTE Corporation (email discussion rapporteur) discussion Rel-16 Late

[R2-2001218](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001218.zip) Open issues for RRC Ericsson (Email disc rapporteur) discussion Rel-16 NR\_2step\_RACH-Core

[R2-2001219](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001219.zip) Phase 2 and phase 1 issue list Ericsson (Email disc rapporteur) discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000992](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000992.zip) Summary of running MAC CR review issue list - phase 1 ZTE Corporation (email discussion rapporteur) report Rel-16

[R2-2000993](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000993.zip) Summary of running MAC CR review issue list - phase 2 ZTE Corporation (email discussion rapporteur) report Rel-16

[R2-2000994](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000994.zip) Summary of open issues in MAC running CR ZTE Corporation (email discussion rapporteur) discussion Rel-16

[R2-2000996](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000996.zip) Draft-Running MAC CR for 2-step RACH ZTE Corporation (email discussion rapporteur) draftCR Rel-16 38.321 15.8.0 B NR\_2step\_RACH-Core, NR\_unlic-Core, TEI16

### 6.13.2 Other user plane stage-3 aspects

RA-RNTI design and open aspects of contention resolution.

**To be discussed over email officially kicked off during e-meeting week (as offline email discussion) and treated the second slot, Week of March 2nd:**

[R2-2001916](C:\\Users\\panidx\\Documents\\RAN2\\TSGR2_109_e\\Docs\\R2-2001916.zip) Summary of UP open issues ZTE

[Offline discussion 507]

**This will not be treated**

[R2-2000141](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000141.zip) Simultaneous BWP Switching and Contention Resolution in 2-step RACH vivo discussion

[R2-2000142](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000142.zip) Resource Selection for 2-step RACH Considering Measurment Gap vivo discussion [R2-1914377](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1914377.zip)

[R2-2000143](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000143.zip) Handling of the Collision Between MsgA Grant and Another UL Grant vivo discussion

[R2-2000144](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000144.zip) Discuession on the MsgB Response Window for 2-step CFRA vivo discussion

[R2-2000220](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000220.zip) Handling PDCCH Order Initiated CFRA Samsung Electronics Co., Ltd discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000221](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000221.zip) NDI Toggling Aspects Samsung Electronics Co., Ltd discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000222](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000222.zip) Preamble Group Selection upon switching from 2 step CFRA to 2 step CBRA Samsung Electronics Co., Ltd discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000223](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000223.zip) Preamble Group Selection upon switching from 2 step to 4 step RA Samsung Electronics Co., Ltd discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000225](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000225.zip) Handling Preambles not associated with PRUs Samsung Electronics Co., Ltd discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000388](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000388.zip) Preamble group selection and 2-step failure reporting Ericsson discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000389](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000389.zip) Combined Back-off and 4-step switch Ericsson discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000391](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000391.zip) Use of 2-step resources on different BWPs Ericsson discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000408](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000408.zip) Issues on preamble group selection for 2-step RACH OPPO discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000409](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000409.zip) Measurement gap impacts on MSGA transmission OPPO discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000777](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000777.zip) Discussion on preamble group selection for 2step RACH initiated by HO Fujitsu discussion Rel-16 NR\_2step\_RACH

[R2-2000812](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000812.zip) Views on Remaining MAC Issues for 2-Step RACH CATT discussion NR\_2step\_RACH-Core

[R2-2000831](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000831.zip) Differentiating between MsgB carrying RRC and other messages Sony discussion Rel-16 NR\_2step\_RACH-Core [R2-1915240](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-1915240.zip)

[R2-2000833](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000833.zip) msgB-RNTI ambiguity for CFRA and CBRA of 2-Step RACH Sony discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000852](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000852.zip) 2-step CBRA preamble group selection Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000853](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000853.zip) Need for ra-MsgASizeGroupA parameter Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000951](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000951.zip) Remaining issues on the msgA transmission Huawei, HiSilicon discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000952](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000952.zip) Remaining issues on MsgB reception Huawei, HiSilicon discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000953](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000953.zip) Draft LS to RAN1 on LSBs of SFN Huawei, HiSilicon discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000954](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000954.zip) Open issues on MAC spec for 2-stepRACH Huawei, HiSilicon discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000955](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000955.zip) MAC handling of MsgA with invalid PUSCH Huawei, HiSilicon discussion Rel-16 NR\_2step\_RACH-Core

[R2-2001017](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001017.zip) Remaining issues on 2-step CBRA Qualcomm Incorporated discussion Rel-16 NR\_2step\_RACH-Core

[R2-2001125](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001125.zip) Preamble grouping for 2-step RA NEC Telecom MODUS Ltd. discussion

[R2-2001510](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001510.zip) Further discussion on preamble group selection LG Electronics discussion NR\_2step\_RACH-Core

[R2-2001512](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001512.zip) Draft 38.321 CR on preamble group selection for 2-step RA type LG Electronics draftCR Rel-16 38.321 15.8.0 C NR\_2step\_RACH-Core

[R2-2001529](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001529.zip) Remaining issue on user plane aspects LG Electronics discussion NR\_2step\_RACH-Core

### 6.13.3 RRC stage-3 related aspects

**To be discussed over email officially kicked off during e-meeting week (as offline email discussion) and treated the second slot, Week of March 2nd:**

[R2-2001917](C:\\Users\\panidx\\Documents\\RAN2\\TSGR2_109_e\\Docs\\R2-2001917.zip) Summary of CP open issues Ericsson

[Offline discussion 508]

**This will not be treated**

[R2-2000224](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000224.zip) PUSCH Resource Configuration for CFRA Samsung Electronics Co., Ltd discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000410](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000410.zip) Remaining issues on configuration of 2-step CFRA OPPO discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000586](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000586.zip) Open Issues on 2-step RACH Apple discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000650](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000650.zip) Views on Remaining RRC Issues for 2-Step RACH CATT discussion NR\_2step\_RACH-Core

[R2-2000778](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000778.zip) Discussion on RO and PO configuration for CFRA Fujitsu discussion Rel-16 NR\_2step\_RACH

[R2-2000998](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000998.zip) Resource configuration for 2-step CFRA ZTE Corporation, Sanechips discussion Rel-16

### 6.13.4 Other

CFRA for 2-step RACH for HO if time permits as per plenary guidance.

ZTE will summarize the proposals and open issues and provide possible way forward for online discussions. Companies are encouraged to work together towards a converged solution.

**This will not be treated**

[R2-2000390](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000390.zip) BSR over 2-step RA Ericsson discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000392](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000392.zip) Beam specific 2-step RA support Ericsson discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000393](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000393.zip) MsgA transmission for NR-U Ericsson discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000916](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000916.zip) Discussion on the release of the PUSCH resources CMCC discussion Rel-16

[R2-2000917](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000917.zip) Remaining issues on 2-step CFRA CMCC discussion Rel-16

[R2-2000926](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000926.zip) Open issues for 2-step CFRA CMCC discussion Rel-16 Revised

[R2-2000943](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000943.zip) MSGB for CFRA Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_2step\_RACH-Core

[R2-2000956](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000956.zip) Prioritized 2-step RACH Huawei, HiSilicon discussion Rel-16 NR\_2step\_RACH-Core

[R2-2001032](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001032.zip) Remaining issues on 2-step CFRA Qualcomm Incorporated discussion Rel-16 NR\_2step\_RACH-Core

[R2-2001095](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001095.zip) RAN2 aspect of UE capability for 2-step RACH Intel Corporation discussion Rel-16 NR\_2step\_RACH-Core

[R2-2001102](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001102.zip) Discussion on MsgB PDCCH Potevio Company Limited discussion Rel-16 NR\_2step\_RACH-Core

[R2-2001471](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001471.zip) Further discussion on 2-Step CFRA CMCC discussion Rel-16 [R2-2000926](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2000926.zip)

[R2-2001514](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001514.zip) Releasing CFRA resources for 2-step RA type LG Electronics discussion NR\_2step\_RACH-Core

[R2-2001515](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001515.zip) Draft 38.321 CR on release of CFRA resource for 2-step RA type LG Electronics draftCR Rel-16 38.321 15.8.0 B NR\_2step\_RACH-Core

[R2-2001518](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109_e\Docs\R2-2001518.zip) Draft 38.331 CR on release of CFRA resource for 2-step RA type LG Electronics draftCR Rel-16 38.331 15.8.0 NR\_2step\_RACH-Core