3GPP TSG-RAN WG2 Meeting #123bis R2-2xxxxxx

Xiamen, China, October 9th – 13th, 2023

Source: Session Chair (MediaTek), Johan

Title: Report from session on Mobility Enh, Mobile IAB and LP-WUS

Schedule: See main Schedule on the server

Offline Disc Range [500]-[599]

# Offline Discussions

* [AT123bis][506][mIAB] BAP (HW)

 Scope: progress based on proposals to this meeting and comments

 Intended outcome: Endorsable running CR

 Deadline: CB Thursday
CLOSED

* [AT123bis][507][mIAB] Support of RACH-less HO (Samsung)

 Scope: Focus on the necessary delta to NTN (e.g. no need to confirm every NTN agreement for mIAB). Review proposals in RRC CR, in R2-2311179 (and other relevant docs if needed).

 Deadline: CB Thursday
CLOSED

* [AT123bis][508][mIAB] Cell reselection and PCI list of IAB cells (LGE)

 Scope:

 Intended outcome: Agreeable points

 Deadline: CB Thursday
CLOSED

* [AT123bis][510][LP-WUS] connected mode (vivo)

 Scope: Can consider additional option (if support is significant), Can consider to describe the options a little but better, identify open points that should be addressed/clarified in the SI. Can consider to capture pros/cons for each option. Can consider capture something related to duty-cycled, continuous modes.

 Intended outcome:

 Deadline: CB Friday

 CLOSED

* [AT123bis][505][feMob] LTM RRC (Ericsson)

 Scope: Discuss and converge on L1 related RRC handling and configuration, can also pre-discuss with lower prio L2L3 related RRC handling and configuration, and bearer remapping/handling for DC.

 Deadline: CB acc to Meeting schedule (for L2L3 RRC handling and config and DC CB wed morning). CLOSED WED

* [AT123bis][502][feMob] LS out to R3 on S-CPAC (ZTE)

 Deadline: CB Thursday
CLOSED

* [AT123bis][503][feMob] subsequent CPAC security issues (Nokia)

 Scope: f2f offline, attempt further progress.

 Intended outcome:

 Deadline: CB Thursday
CLOSED

* [AT123bis][504][feMob] open issues on CHO with candidate SCGs (CATT)

 Scope: Offline further progress based on R2-2311249 (and related other contributions). Identify “easy agreements” and FFS points for further disc next meeting.

 Deadline: CB Thursday
CLOSED

* [AT123bis][511][feMob] Stage-2 TP for Early Synchronization (MTK)

 Deadline: CB Thursday
CLOSED

* [AT123bis][512][feMob] LS to R3 (Huawei)

 Scope: LTM: Produce LS about R2 progress applicable to R3 and ask Q to R3 (to the extent needed).

 Intended outcome: Agreeable LS (if possible)

 Deadline: Friday (may continue in a post disc)
CLOSED

* [AT123bis][513][feMob] R1 LS (Ericsson)

 Scope: LTM: Produce LS about R2 progress applicable to R1 and ask Q to R1 (to the extent needed). Collect early comments. Companies are asked to provide comments early on parts that may need discussion.

 Intended outcome: Agreeable LS (if possible)

 Deadline: Will check Friday
CLOSED

* [AT123bis][514][feMob] LTM MAC Related Open Issues (Huawei)

 Scope: Based on progress so far, continue discussions on R2-2311250, converge on remaining parts, prioritize parts with cross-TS dependency. Can also include other relevant potentially high-priority issues.

 Deadline: CB Thursday
CLOSED

Post meeting discussions

* [Post123bis][551][feMob] eEMR SCell setup delay (Nokia)

 Scope: Initial Identification of R2 impact and attempting RRC Draft CR (as far as reasonable given R4 progress). Due to short time between meetings – very limited ambition level (only one round of comments).

 Intended outcome: Report, draft CR (that can be a baseline)

 Deadline: Long

* [Post123bis][552][feMob] LTM RRC CR (Ericsson)

 Scope: CR endorsement, update of related Open Issues

 Intended outcome:

 Deadline: Short

* [Post123bis][553][feMob] S-CPAC RRC CR (OPPO)

 Scope: Reflect agreements. CR endorsement, update of related Open Issues

 Intended outcome: Endorsed Running CR (+ OI)

 Deadline: Short

* [Post123bis][554][feMob] CHO with Cand SCG RRC CR (CATT)

 Scope: Reflect agreements. CR endorsement, update of related Open Issues

 Intended outcome: Endorsed Running CR (+ OI)

 Deadline: Short

* [Post123bis][555][feMob] MAC CR (Huawei)

 Scope: Reflect agreements. CR endorsement, update of related Open Issues

 Intended outcome: Endorsed Running CR (+ OI)

 Deadline: Short

* [Post123bis][556][feMob] 38300 CR (MediaTek)

 Scope: Reflect agreements. CR endorsement, update of related Open Issues

 Intended outcome: Endorsed Running CR (+ OI)

 Deadline: Short

* [Post123bis][557][feMob] 37340 CR (ZTE)

 Scope: Reflect agreements. Expect to include SCG LTM and S-CPAC. CR update, update of related Open Issues if applicable

 Intended outcome: Agreeable Running CR

 Deadline: Long

* [Post123bis][558][feMob] Subsequent CPAC security Reply LS (Nokia)

 Scope: Reply LS to SA3

 Intended outcome: Approved LS

 Deadline: Short

* [Post123bis][559][mIAB] MAC CR (Samsung)

 Scope: Review the MAC CR (NTN CR), determine applicability to mIAB and issues (if any), collect opinions on CR strategy.

 Intended outcome: Report

 Deadline: Long?

* [Post123bis][560][mIAB] BAP CR (Huawei)

 Scope: Reflect agreements. CR endorsement, update of related Open Issues

 Intended outcome: Endorsed Running CR (+ OI)

 Deadline: Short

* [Post123bis][561][mIAB] 38300 CR (Qualcomm)

 Scope: Reflect agreements. CR endorsement, update of related Open Issues if applicable

 Intended outcome: Endorsed Running CR

 Deadline: Short

* [Post123bis][562][mIAB] 38304 CR (Intel)

 Scope: Reflect agreements. CR endorsement, update of related Open Issues

 Intended outcome: Endorsed Running CR (+ OI)

 Deadline: Short

* [Post123bis][563][LP-WUS] R2 Text Proposal (vivo)

 Scope: Take agreements into account, propose/converge on how to capture in the TR. identify related open issues. Can also include some limited scope for Idle mode not explicitly agreed at current meeting, e.g. describe the general dependency LP-WUS information carrying capability -> R2 related functionality, for confirmation/agreement next meeting. Ambition level limited.

 Intended outcome: Text Proposal to TR, possible complemented by proposals relating to open issues, alternatives etc

 Deadline: Long

Note that the time is short to next meeting, and the purpose of next meeting email discussions is to simplify treatment and prep for next meeting, rather than having deep technical discussions.

# Reference documents

Session Chair: These reference docs are duplicate-listed here as they need to be taken into account, but they are treated under AI 7.0.1 and 7.0.3.

R2-2309417 LS on Rel-18 RAN1 UE features list for NR after RAN1#114 (R1-2308523; contact: NTT DOCOMO, AT&T) RAN1 LS in Rel-18 NR\_MIMO\_evo\_DL\_UL, NR\_pos\_enh2, Netw\_Energy\_NR, NR\_netcon\_repeater, NR\_NTN\_enh, NR\_Mob\_enh2, NR\_SL\_enh2, NR\_redcap\_enh, NR\_MC\_enh, NR\_XR\_enh, NR\_FR1\_lessthan\_5MHz\_BW, NR\_DSS\_enh, NR\_BWP\_wor, NR\_cov\_enh2, TEI18 To:RAN2 Cc:RAN4

R2-2310023 Running UE capability CR on 38.306 for Rel-18 R1 R4 feature lists Intel Corporation draftCR Rel-18 38.306 17.6.0 NR\_MIMO\_evo\_DL\_UL, NR\_netcon\_repeater, NR\_DSS\_enh, NR\_MC\_enh, NR\_FR1\_lessthan\_5MHz\_BW, NR\_BWP\_wor, NR\_redcap\_enh, TEI18

R2-2310024 Running UE capability CR on 38.331 for Rel-18 R1 R4 feature lists Intel Corporation draftCR Rel-18 38.331 17.6.0 NR\_MIMO\_evo\_DL\_UL, NR\_netcon\_repeater, NR\_DSS\_enh, NR\_MC\_enh, NR\_FR1\_lessthan\_5MHz\_BW, NR\_BWP\_wor, NR\_redcap\_enh, TEI18

R2-2309434 LS on Rel-18 higher-layers parameter list (R1-2308674; contact: Ericsson) RAN1 LS in Rel-18 NR\_MC\_enh-Core, NR\_MIMO\_evo\_DL\_UL-Core, NR\_pos\_enh2-Core, Netw\_Energy\_NR, NR\_cov\_enh2, NR\_XR\_enh-Core, NR\_Mob\_enh2, NR\_BWP\_wor-Core, NR\_NTN\_enh, IoT\_NTN\_enh-Core, TEI18 To:RAN2, RAN3 Cc:RAN4

## 7.4 Further NR mobility enhancements

(NR\_Mob\_enh2-Core; leading WG: RAN2; REL-18; WID: RP-223520)

Time budget: 2 TU

Tdoc Limitation: 6 tdocs .

Running CR rapporteurs are encouraged to actively drive CR progress (can e.g. suggest to chair how to treat).

### 7.4.1 Organizational Stage-2 and UE caps

Including LSs and any rapporteur inputs (e.g. work plan, running CRs update for common Running CRs). Including performance impacts, e.g. for LTM and potential elaboration on the components of the LTM latency time line, if needed. Including impacts to and expectations of other groups.

Including outcome of [Post123][054][feMob] Stage-2 Signalling Open Issues and Running CR 37340 (ZTE)

Including RAN2 features and related UE caps. Plese take into account RAN1 and RAN4 features which are handled in Rel-18 common AI 7.0.
Including other issues, if any

LS in

LTM

R2-2309414 Reply LS on L1 measurements for LTM (R1-2308465; contact: Ericsson) RAN1 LS in Rel-18 NR\_Mob\_enh2-Core To:RAN2

* Noted

R2-2309426 LS on L1 measurement and TA management for LTM (R1-2308625; contact: CATT, Fujitsu, MediaTek) RAN1 LS in Rel-18 NR\_Mob\_enh2-Core To:RAN2, RAN3, RAN4

* Noted

R2-2309457 Reply LS on PDCCH order RACH on neighbour cell (R4-2314454; contact: CATT) RAN4 LS in Rel-18 NR\_Mob\_enh2-Core To:RAN1 Cc:RAN2

* Noted

R2-2309458 Reply LS on beam application time and UE based TA measurement for LTM (R4-2314455; contact: Ericsson RAN4 LS in Rel-18 NR\_Mob\_enh2-Core To:RAN1 Cc:RAN2, RAN3

* Noted

Stage-2

37340

R2-2309830 37.340 running CR for introduction of NR further mobility enhancements ZTE Corporation, Sanechips draftCR Rel-18 37.340 17.6.0 B NR\_Mob\_enh2-Core

- ZTE explains this is the version based on agreements at previous meeting.

* Endorsed (as starting point for this meeting)

R2-2309832 Open issue list on 37.340 running CR ZTE Corporation, Sanechips discussion Rel-18 NR\_Mob\_enh2-Core

* noted

38300

R2-2310360 38.300 running CR for introduction of NR further mobility enhancements MediaTek Inc., vivo draftCR Rel-18 38.300 17.6.0 B NR\_Mob\_enh2-Core

- MTK explains that FFS issues resolved in stage-3 were removed. More need to be captured for DL and UL synch.

* Noted

R2-2310361 Stage-2 TP for Early Synchronization MediaTek Inc. discussion

* [AT123bis][511][feMob] Stage-2 TP for Early Synchronization (MTK)

 Deadline: CB Thursday

 CLOSED

R2-2311330 Summary of [AT123bis][511][feMob] Stage-2 TP for Early Synchronization MediaTek Inc.

DISCUSSION

- Ericsson has further comments on the TP, can modify in a post email discussion.

- Ericsson think we should avoid overlap with R4 TS and we should remove values etc. MTK think RAN4 is not finished

- *Session Chair: TP seems almost agreeable, only need polishing*

* P1: The description for early DL synchronization doesn’t need to be captured in a separate section, and that a descriptive text is sufficient.
* P2: Early UL synchronization is described without flowchart in the general description of LTM instead of an independent new section.
* P3: Maintain/update the time chart in the running CR and keep the time chart in the specification.
* Update the TP to remove overlap with R4 (acc to current status). Shall in any case not have overlap in the final CR to TSG RAN

Post email discussion for 38300, incl TP as the starting point.

UE capabilites

R2-2310028 38.306 running draftCR for introduction of NR further mobility enhancements Intel Corporation draftCR Rel-18 38.306 17.6.0 NR\_Mob\_enh2-Core

R2-2310029 38.331 running draftCR for UE capability of NR further mobility enhancements Intel Corporation draftCR Rel-18 38.331 17.6.0 NR\_Mob\_enh2-Core

- Intel reports that this just includes a single UE cap, reflecting one agreement, no need for endorsement

* Both noted

R2-2310033 Discussion on L2/3 UE capabilities for NR further mobility enhancements Intel Corporation discussion Rel-18 NR\_Mob\_enh2-Core

* noted

R2-2311000 UE capability for LTM and leftover stage 2 issues Huawei, HiSilicon discussion Rel-18 NR\_Mob\_enh2-Core

* noted

- HW think the R1 – R2 dependencies need to be discussed in the mob session.

- intel think that some of the R1 features need disc and we can do it here.

- We discuss both R2 UE caps and R1/R4 feautres in this session for next meeting.

P1

- Apple think this relates to discussion yesterday, dep on TCI des. Suggest email discussion.

- QC: think for R1 dep we wait for further R1 progress.

*Long email discussion with limited ambition level to next level (e.g. one round of collecting comment, collection of input rather than discussion). Focus on RAN2 cap, can also include RAN1 features (best effort collection of comments, to understand which ones we need to work on)*

P9 DISCUSSION

- HW think we should confirm that deactivated SCell is supported, and also some other scenario. Think some generality should be assumed in the CRs.

- Ericsson support, and think it is supported already.

- QC agrees the current CR seems to support this.

- Xiaomi think this have impact on other groups.

* Confirm that deactivated SCell as LTM candidate cell is supported
* Intention: The mechanism for early UL/DL synchronization of candidate target cells should be designed in a common manner for both PCell and SCell switch (to achieve the target of reduced cell switch delay in CA case).

### 7.4.2 L1L2 Triggered Mobility

#### 7.4.2.1 Control Plane and RRC

(WID: Configuration and maintenance for multiple candidate cells to allow fast application of configurations for candidate cells [RAN2, RAN3]).
General LTM discussions (incl all aspects), if needed. RRC impact and solutions, stage-3 oriented: companies are encouraged to illustrate proposals by Text Proposals. Including the RRC LTM running CR. Including the outcome of [Post123][056][feMob] LTM Running CR RRC (Ericsson).

Including
1) R2 centric issues : LTM config and execution (candidate + ref, applying complete config) etc
2) R1-centric issues: e.g. reflecting RRC parameters (CSI, TCI, TA) from RAN1, and decision on the two options on CSI report provided by RAN1.

LTM RRC CR

R2-2310885 RRC running CR for LTM Ericsson draftCR Rel-18 38.331 17.6.0 B NR\_Mob\_enh2-Core

- Ericsson think some things should be addressed, this version not to be endorsed.

- Ericsson think we should merge the RRC CRs.

- MTK think we should merge as we have reference configs that can be a common thing. Vivo agrees.

- HW think we should first separate endorse. Merge at next meeting.

* We attempt merge at next meeting, endorse first.
* Expect to endorse RRC CR in a post email disc.

R2-2310886 RRC open issues list for LTM Ericsson discussion Rel-18 NR\_Mob\_enh2-Core

* noted

Procedure Coexistence etc

E.g. coexistence with other mobiltiy procedures. Offline long email to next meeting.

R2-2310887 Discussion of remaining RRC open issues for LTM Ericsson discussion Rel-18 NR\_Mob\_enh2-Core

DISCUSSION

P6

- QC wonder if this is for the same target cell, could be complex. FW agrees and want to avoid this.

- OPPO wonder then how many cond reconfigurations need to be supported.

- CATT think we need to discuss how to handle LTM config handling during CHO CPC and vice versa.

- Nokia think that at execution of one the other config could be released.

- Ericsson think LTM is for capacity and CHO is for robustness and there are reasons to support both.

- HW think CHO is like any other handover, no additional impact. Think that the network can avoid complexities, e.g. race conditions.

- Samsung think that eg. same target cell is complex.

- Lenovo think we can maybe just leave it as is, allow it and if someone really want some specific scenario operator and vendor will have specific test cases.

*Session Chair: Not clear, maybe we can just allow this co-exsistance CHO/LTM without further spec change*

* It is assumed that L3 handover may happen while LTM is configured / evaluated / used.
* P4: RAN2 confirms that during network triggered L3 HO / PSCell change, the UE does not autonomously release the LTM configuration.
* P5: RAN2 confirms that the RRCReconfiguration message to execute an L3 HO or PSCell change procedure may reconfigure (setup, release) the LTM configuration.

R2-2310399 L3 handover with LTM configuration Fujitsu discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310802 Coexistence of LTM and L3M/CHO Interdigital, Inc. discussion Rel-18 NR\_Mob\_enh2-Core

L1 related RRC handling and configuration

CSI Meas Report config, measurment RS/resource config, TCI, (inside outside containers?), SMTC?, Early RACH resource (Freq SSB BWP RO?) TCI early activation, TCI indication, CFRA resource indication, etc. Follow RAN1-suggested modelling or not?

Treat offline first, review current CR, consider comments in meeting inputs.

- Ericsson think that we can treat also L2L3 config and Bearer mapping but with lower priority

* [AT123bis][505][feMob] LTM RRC (Ericsson)

 Scope: Discuss and converge on L1 related RRC handling and configuration, can also pre-discuss with lower prio L2L3 related RRC handling and configuration, and bearer remapping/handling for DC.

 Deadline: CB acc to Meeting schedule (for L2L3 RRC handling and config and DC CB wed morning).

 CLOSED WED

R2-2311283 [AT123bis][505][feMob] LTM RRC Ericsson

- MTK point out that R1 majority view was O1, but after checking O2 seems ok with R1.

* For the model of CSI report configuration, RAN2 to implement Option 2 (as in current RRC running CR).
* For the model of RS configuration, RAN2 to follow what indicated by RAN1 in the parameter list.
* The LTM CSI resource configuration is generated by the CU. Send an LS to RAN3 (include in LS below)
* The list of LTM CSI resource configuration is common for all the LTM candidate cells (as in current RRC running CR).
* RAN2 assumes that network can include the field spCellInclusion only if the SpCell is an LTM candidate cell.
* We send an LS to RAN1.
* [AT123bis][513][feMob] R1 LS (Ericsson)

 Scope: Produce LS about R2 progress applicable to R1 and ask Q to R1 (to the extent needed). Collect early comments. Companies are asked to provide comments early on parts that may need discussion.

 Intended outcome: Agreeable LS (if possible)

 Deadline: Will check Friday
CLOSED Thu

R2-2311533 [DRAFT] LS on L1 measurements for LTM Ericsson

- Corrections: To: RAN1, RAN4, Action both to RAN1 and RAN4

- CATT think R4 is discussing this.

* With the corrections above the LS is approved in R2-2311333

R2-2310888 Early sync and L1 measurements Ericsson discussion Rel-18 NR\_Mob\_enh2-Core

Most P handled offline (see above)

P3

- MTK think this should be left to impl. ZTE and CATT agrees

* No particular solution needed for TA timer handling, this is expected to be handled by the network.

R2-2309916 Discussion on L1 related issues for LTM CATT discussion Rel-18 NR\_Mob\_enh2-Core

- CATT indicates that RAN1 are discussing the issues on early Rach and TCI state this meeting, and suggest to wait for more R1 progress. Ericsson agrees.

* For RRC aspects of early RACH and TCI state handling, wait for R1

R2-2310371 Discussion on RRC open issues for LTM OPPO discussion Rel-18 NR\_Mob\_enh2-Core

DISCUSSION on SMTC proposals

- Ericsson think this is not in the current CR, this is in the MO

- CATT think this is left for RAN4, and this is discussed in RAN4, dep on whether inter-freq is supported.

- Xiaomi think it is reasonable, and we should probably ask R1 or R4.

- Apple think this was in R1 discussions and we can ask.

* Ask about SMTC (include in R1 LS)

R2-2309710 Discussion on RRC centric open issues LG Electronics discussion Rel-18 NR\_Mob\_enh2-Core

Partially covered already

* Noted

R2-2310999 RRC aspects for LTM Huawei, HiSilicon discussion Rel-18 NR\_Mob\_enh2-Core

DISCUSSION

2abc

- No LS is expected from R3.

- Ericsson think it is ok to agree, think we should ask R3 how the src is identified.

* Proposal 2a: For each candidate target cell towards which early RACH is supported, the UE is provided with a RACH configuration (per source per cand), which can be the same for multiple source cells.
* Proposal 2b: RAN2 understands that the source DU needs to know the early RACH configuration for each candidate cell, so that source cell can know how to set the PDCCH order information for early RACH.
* Proposal 2c: The candidate DU provides the TA value and its associated information to the source DU via the CU, e.g. preamble index, RO information (i.e. RA-RNTI) and candidate cell identity, so that the source DU can identify the UE. RAN3 can design the necessary network signalling.
* Send LS to R3
* [AT123bis][512][feMob] LS to R3 (Huawei)

 Scope: Produce LS about R2 progress applicable to R3 and ask Q to R3 (to the extent needed).

 Intended outcome: Agreeable LS (if possible)

 Deadline: Friday (may continue in a post disc)

R2-2311576 LS on CSI resource configuration and on early RACH for LTM Huawei

* LS out is approved in R2-2311332

R2-2309719 Discussion on LTM procedures vivo discussion Rel-18 NR\_Mob\_enh2-Core

L2L3 related RRC handling and configuration

RRC Configurations in general: ref config, cand config, complete config, procedure, use of existing delta configuration. Need Codes N, R, S, Configurations to determine L2 reset.

Treat Online

R2-2309720 RRC configuration for LTM vivo discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310200 LTM Configuration and Execution MediaTek Inc. discussion Rel-18 NR\_Mob\_enh2

R2-2309834 Remaining issues on LTM RRC ZTE Corporation, Sanechips discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310579 Remaining issues of RRC configured Layer-2 reset Xiaomi discussion Rel-18 NR\_Mob\_enh2-Core R2-2307669

R2-2310624 Discussion on RRC aspects of LTM Samsung discussion

R2-2310619 Discussion on RRC aspects for L1/L2-Triggered Mobility Xiaomi discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311124 Remaining issues for RRC Aspects of LTM SHARP Corporation discussion Rel-18 NR\_Mob\_enh2-Core

**RRC**

* Combination of Ref + Cand configuration will use legacy delta config procedure (simplification of current Running CR), where the UE considers the Ref config as current config and applies the candidate config using legacy delta configuration procedure.
* Will be specified as if it is done in real time, but with R2 understanding that UE implementation is allowed to pre-generate configurations.

- RRC Editor is considering to introduce small fixes proposed in various documents in the next update of the CR.

- Intel wonder if we need the section on update of the Reference config. Ericsson think this is not needed, but something is needed.

- vivo think that the need codes still need special handling. Ericsson think that with this proposal the need codes is as today.

Failure Handling

R2-2310633 On Failure Handling for Rel-18 LTM Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311210 LTM Cell Switch Aspects Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310803 Fast RLF for LTM execution Interdigital, Inc. discussion Rel-18 NR\_Mob\_enh2-Core

DC CA and Bearer Remapping
MCG LTM, SCG LTM, CA scenarios

Treat Online

R2-2309915 Discussion on RAN2 centric issues for LTM CATT discussion Rel-18 NR\_Mob\_enh2-Core

P4

- HW think there is no problem. SCG is deactivated so there would be not much or no L1 measurements anyway, Lenovo agrees this will not happen.

P5

- Apple think we can support LTM recovery for SCG LTM. Ericsson think there will be some work for this.

- Nokia think we normally don’t allow UE to recover by itself.

* R2 assumes that SCG LTM with deactivated src SCG will not happen (no TS impact)
* For SCG configured LTM in NR-DC scenario, LTM recovery for SCG is not supported.
* For SCG configured LTM in NR-DC scenario, in the case of RLF on PSCell / SCG LTM execution failure / PSCell change failure, UE shall

- If the MCG transmission is not suspend, SCG failure information procedure will be triggered;

- Otherwise, RRC re-establishment will be executed.

R2-2309833 Consideration on LTM in NR-DC ZTE Corporation, Sanechips discussion Rel-18 NR\_Mob\_enh2-Core

* noted

R2-2311095 RRC aspects of LTM Qualcomm Incorporated discussion

* noted

DISCUSSION

SCG release at MCG LTM

- Ericsson think we can keep the release at execution, but can allow also the network to release beforehand. Think we need restriction on which bearers can be allowed.

- NEC think everyone agrees on the need to release, but think there is interruption if there is reelase beforehand. Think we need to look into RB config think MN terminated RB no issue, think SN RN need to be remapped.

- vivo think it is up to network impl when to reelase, think SN terminated RBs can be handled by the network.

- MTK think that the issue by ZTE is valid: i.e. that PDCP reest or recovery is needed atbearer remapping.

- Apple think we should just rely on the network to provide the configuration for what the UE should do.

LTM Complete indication in SCG if SRB3 is not available

- 2 alts in papers

- CATT prefers MAC CE. Lenovo hink CRNTI MAC CE can be used.

* UE only releases SCG configuration at MCG LTM execution if configured by the network (revert prior agreement). No intention to optimize further bearer handling for this case.
* UE need to send an UL transmission for procedure competion also for SCG case. If SRB3 is not configured, FFS exactly if / what modification to 3GPP TS is needed.

R2-2310634 On SCG Release in Rel-18 LTM Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309581 RB Reconfig for MCG LTM and Clarification on SCG LTM NEC discussion NR\_Mob\_enh2-Core

R2-2310372 Discussion on SCG LTM OPPO discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309931 Analysis on SCG LTM Lenovo discussion Rel-18

R2-2311211 On bearer handling in LTM Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_Mob\_enh2-Core

Security – Avoiding Key Stream Reuse

R2-2310398 Remaining issue on LTM cell switch procedure Fujitsu discussion Rel-18 NR\_Mob\_enh2-Core

- Ericsson think for LTM we always have the same CU so maybe no issue for LTM.

- Fujitsu think that for failure scenario, count may be used again

- Xiaomi agrees with Fujitsu.

- Intel think in general the network has the responsibility to avoid this reuse.

- Chair: not clear whether there is an issue.

* Noted

Further elaborations

Measurements

R2-2310278 Discussions on LTM related measurements CMCC discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309580 L1 measurement report to support LTM NEC discussion NR\_Mob\_enh2-Core

Misc

R2-2310339 CFRA and CG configuration aspects in LTM Apple discussion Rel-18 NR\_Mob\_enh2-Core

Enhancements

R2-2310400 Failure detection and fast recovery Fujitsu discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310440 Prioritizing of LTM candidate cells Rakuten Symphony discussion Rel-18

R2-2310473 Security impacts of intra gNB, inter gNB-CU-UP relocation Rakuten Symphony discussion Rel-18

R2-2310538 Miscellaneous issues of L1/L2 Triggered Mobility Rakuten Symphony discussion Rel-18

R2-2310983 Fast cell recovery aspects for LTM failures Panasonic discussion Rel-18

R2-2311091 Conflict between LTM triggering and legacy RRC messaging Qualcomm Incorporated discussion

#### 7.4.2.2 L2 centric parts

General LTM discussions (incl all aspects) where the main issue/discussion point is L2 centric, if needed. Including L2 and MAC impacts (Stage-3 oriented) and remaning issues for dynamic cell switch not addressed by subclause above. Including the MAC Running CR.

MAC

Treat online

R2-2309869 38.321 running CR for introduction of NR further mobility enhancements Huawei, HiSilicon draftCR Rel-18 38.321 17.6.0 NR\_Mob\_enh2-Core

- HW indicate that there are updates to address editors notes

* Updates reviewed together with capture of meeting agreements in post email disc

R2-2309870 Rapporteur proposals to address open issues in MAC running CRs (open issue list) Huawei, HiSilicon discussion Rel-18 NR\_Mob\_enh2-Core

=> Revised in R2-2311250

R2-2311250 Rapporteur proposals to address open issues in MAC running CRs (open issue list) Huawei, HiSilicon discussion Rel-18 NR\_Mob\_enh2-Core

P2

- Ericsson think we need a configuration similar to for L2 reset as it depnds on bilateral inter-cell synch

- Xiaomi think we also need to consider TA timer handling.

P4

- LG think option 2 is simple. KDDI agrees. Lenovo think we can go this way.

- ZTE think we should have a separate configuration for this CG and then only used for LTM anot nothing more.

- vivo think this is just for first UL tx

- CATT think O1 is more reasonable.

- Chair suggest to just clarify the previous agreement (Option 2): For CG-based UL transmission for confirmation in the target cell, it is assumed this is CG configuration in the cond config and the UE can continue to use those CG (following current behaviour)

- Nokia think that for network, the CG handling is problematic, e.g. to support CG for many beams. Samsung also think O2 is problematic and think CG is needed for NTN.

P6

- Lenovo think it need to be addressed to same HARQ process ID. Xiaomi ZTEagree

* If UE is configured by RRC to perform UE based TA measurement, UE applies the measured TA value and performs RACH-less LTM, upon LTM cell switch. (assume similar config as for L2 reset)
* Observation: No or small specification impact/restriction is expected on the UE to use both DG and CG for RACH-less LTM.
* For RACH-less LTM, the UE determines successful reception of its first UL data based on receiving a PDCCH addressing the UE’s C-RNTI in the target cell scheduling a new transmission as first UL transmission. Can be either DL assignment or UL grant addressed to same HARQ process for the “new transmission”
* [AT123bis][514][feMob] LTM MAC Related Open Issues (Huawei)

 Scope: Based on progress so far, continue discussions on R2-2311250, converge on remaining parts, prioritize parts with cross-TS dependency. Can also include other relevant potentially high-priority issues.

 Deadline: CB Thursday

R2-2311574 Summary of [AT123bis][514][feMob] LTM MAC Related Open Issues Huawei, HiSilicon

DISCUSSION

- P4: Nokia and LGE think we need to discuss next meeting how this works e.g. in the network end for dyn. switching.

- P11: MTK think O2 is needed for UE based TA measurement. Ericsson think O1 can work. ZTE has checked and think O1 is sufficient.

* P9: As to the CFRA resource related information in LTM MAC CE, it is the information similar to those in the legacy PDCCH order triggered RACH, including preamble index, UL/SUL indicator, SSB index, PRACH Mask index (FFS which config is referring to), and FFS on the Msg1 repetition number, and FFS additional info,
* P11: As for providing the TA for “same TA value as source” case, RAN2 agree Option 1 is baseline without further impact. Option 1: Implicit way by directly providing the TA value; Can add additional option if needed.
* P4: RAN2 to define the UE behaviour on the R18 CG for RACH-less LTM, if it is not released by NW after LTM completion:

Option 1: UE stops using those CG (FFS on the spec impact/wording details);

* P5: No need to support “UE considers RACH-less LTM failure, if the *configuredGrantTimer* expires before LTM completion/T304 expiry.”
* P13: In RACH-less LTM, TCI state field should be provided in the LTM cell switch MAC CE, i.e. UE uses the beam indicated by the NW in RACH-less LTM.
* Proposal 8a: In RACH-less LTM, the MAC reset operation is performed before applying the TA value of target cell.
* P8b: LTM MAC reset is triggered by RRC layer (in Reconfiguration with sync procedure) and MAC layer applies the TA value only after MAC reset operation.
* P15: MAC layer does not indicate RRC layer to trigger/skip RACH upon receiving the LTM cell switch command MAC CE. *(to close one EN in MAC running CR)*

*Proposal 14a: From RAN2 perspective, in case TCI state (or SSB info) field is included in RACH-based LTM, if further agreed by RAN1 (e.g. to activate the TCI state), RAN2 assume UE performs SSB selection for RACH based on RSRP as legacy during RACH (including both CBRA and CFRA configured by RRC). This will be included in the LS to inform RAN1 (to check if any concern from RAN1).*

*As legacy = UE uses indicated beam if CFRA, UE selects a beam if CBRA (and ignores indicated beam if any).*

DISCUSSION

14a

- ZTE think R1 has 6 options on the table. Think RAN2 can decide which beam to use at RACH.

- Ericsson and FW think that also for CBRA the UE should use indicated beam. Samsung agrees,

*Session chair: We wait for R1 discussion. If not converged at next meeting RAN2 can decide.*

R2-2309546 Discussion on L2 Centric Parts CATT discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309711 Discussion on CFRA based LTM LG Electronics discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309721 Contents of LTM MAC CE and other MAC related issue for LTM vivo discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309769 Cell Switching – Open Issues Samsung Electronics Co., Ltd discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309770 Early Timing Advance Management for LTM - Open Issues Samsung Electronics Co., Ltd discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309871 Early TA acquisition and LTM MAC CE format Huawei, HiSilicon discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309894 RAN2 aspects of RACH-based early TA acquisition Fujitsu discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309895 The completion of RACH-less LTM Cell switch Fujitsu discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309996 Remaining issues to support PDCCH-ordered RACH for early TA acquisition LG Electronics Inc. discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310018 Discussion on remaining issues for LTM cell switch command Transsion Holdings discussion Rel-18

R2-2310099 Some views On Remaining L2 centric issues for LTM ZTE Corporation, Sanechips discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310338 On closing L2 centric open issues in LTM Apple discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310373 Discussion on L2-centric issues for LTM OPPO discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310392 RACH-Less LTM MediaTek Inc. discussion

R2-2310580 RACH-less LTM and early TA Xiaomi discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310581 Remaining issues for RACH-based LTM Xiaomi discussion Rel-18 NR\_Mob\_enh2-Core R2-2307671

R2-2310646 Discussion on L2 centric part of LTM NEC discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310739 Discussions on TA acquisition and indication for Rach-less LTM KDDI Corporation discussion Rel-18

Moved Here

R2-2310763 RACH-less solution and TA indication for LTM Sony discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310804 TA indication Interdigital, Inc. discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310889 Remaining MAC issues Ericsson discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311001 RACH-less LTM Huawei, HiSilicon discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311093 Discussion on early TA acquisition and RACH-less LTM Qualcomm Incorporated discussion

R2-2311094 L2 aspects of LTM Qualcomm Incorporated discussion

R2-2311105 Discussion on LTM related MAC CE NTT DOCOMO, INC. discussion Rel-18

R2-2311145 Remaining issues for Early TA acquisition of RACH-less LTM Sharp discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311146 Remaining issues for L2 centric parts of LTM Sharp discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309582 Remaining issues for RACH less LTM cell switch NEC discussion NR\_Mob\_enh2-Core

Moved here

R2-2310017 Discussion on remaining issues of LTM cell switch procedure Transsion Holdings discussion Rel-18

Moved Here

TCI state activation / beam indication

R2-2310279 Considerations on L2 centric parts CMCC discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310104 Remaining issues on candidate cell TCI state activation Panasonic discussion

R2-2310374 Discussion on TCI state related issues for LTM OPPO discussion Rel-18 NR\_Mob\_enh2-Core

UE based TA

R2-2310277 Discussions on LTM open issues CMCC discussion Rel-18 NR\_Mob\_enh2-Core

Moved here

R2-2309851 Support of UE-based TA acquisition for LTM Samsung discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310327 RSTD based early TA acquisition Apple discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309787 Configuration for UE based RACH-less LTM and sequential measurement Futurewei discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309930 Discussion on UE based TA measurement Lenovo discussion Rel-18

R2-2309786 Support UE based TA determination and RACH-less LTM Futurewei discussion Rel-18 NR\_Mob\_enh2-Core

Moved here

Recovery cases

R2-2309881 Discussion on fallback RACH for L1L2-triggered mobility ASUSTeK discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310100 Further Discussion on RACH-less LTM ZTE Corporation, Sanechips discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309713 Views on RACH-less fast recovery KDDI Corporation discussion NR\_Mob\_enh2-Core

Moved here

Further Enhancements

R2-2309788 Lower layer operation for UE based RACH-less LTM Futurewei discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309712 Discussion on L2 centric open issues LG Electronics discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309575 Remaining aspects of Cell Switch Lenovo discussion NR\_Mob\_enh2-Core

R2-2310530 Delayed Resource Reservation for inter gNB-DU LTM Rakuten Symphony discussion Rel-18

R2-2310537 TA acquisition related open issues Rakuten Symphony discussion Rel-18

### 7.4.3 Subsequent CPAC

Formerly called “NR-DC with selective activation cell of groups”.

RRC CR

R2-2310375 RRC running CR for subsequent CPAC in NR-DC OPPO draftCR Rel-18 38.331 17.6.0 B NR\_Mob\_enh2-Core

R2-2310376 RRC open issues list for subsequent CPAC in NR-DC OPPO discussion Rel-18 NR\_Mob\_enh2-Core

- Oppo report that this is resubmission of endorsed CR version, and hasn’t recevied any further comments

* Both noted

Open Issues

R2-2309831 Summary of [Post123][054][feMob] Discussion on stage-2 signalling open issues ZTE Corporation, Sanechips discussion Rel-18 NR\_Mob\_enh2-Core

Moved from 7.4.1

P7

- MTK think this is related to P9, would like to discussion P9 first.

- OPPO think it relates to handling of the Ref config.

P12:

- Ericsson wonder if there are cond in the src SN whether they can be included.

- HW wonder if there is something else. HW think this can include PScells of other cand SN as well

Check with R3

- ZTE explains that the intention is just to send an LS to R3 with the agreements. MTK agrees that RAN2 can make assumptions and send LS.

P14

- Apple understands that the Cand SN only provides info about proposed cells. HW think we only support 8 so this restriction seems practical. OPPO agrees this is the restriction.

P16b

- ZTE explains that New should be removed.

P6

- Nok wonder if the MN initiated can contain only the SN part or always MN and SN. ZTE think this is flexible acc to P5. Ericsson agrees this can be flexible.

Proposals marked easy agreement are agreed, except P7:

* P1a: Upon SCG release, RAN2 confirms that the UE shall release the subsequent CPAC configuration within SCG VarConditionalReconfig autonomously.
* P1b: Upon SCG release, it’s up to the NW decision to maintain or release the subsequent CPAC configuration within MCG VarConditionalReconfig.
* P2: Upon intra-MN PCell change, it’s up to the NW decision to maintain/modify/release the subsequent CPAC configuration.
* P3: If there are maintained subsequent CPAC configurations with CPA execution conditions after SCG release, the maintained configurations can be used for the subsequent CPA execution.
* P4: The coexistence of subsequent CPAC and SCG deactivation is not supported in Rel-18, i.e. follow the same principle as legacy CPAC.
* P5: The candidate and reference configuration for subsequent CPAC can include both MCG and SCG part configurations. It can be up to the NW implementation whether to include the MCG part.
* P6: The MN generates the MCG part of the reference configuration (if any), while the SN (source or candidate) generates the SCG part of the reference configuration.
* P8: The MN is responsible for the reference configuration generation for MN/SN initiated inter-SN SCPAC.
* P10: The MN can request an SCG reference configuration from any of the involved SNs.
* P11: Candidate SN prepares the execution conditions for subsequent CPC when the candidate SN prepares the candidate SCG configuration(s) for candidate PSCell(s).
* P12: For SN initiated inter-SN subsequent CPAC, in SN Change Required message, the source SN includes the following information to the MN:
- A list of candidate SNs (can also include source SN) for the initial and subsequent CPC, and for each candidate SN in the list, a list of PSCells suggested to be prepared by the candidate SN.
- Execution conditions associated with each suggested PSCell of the initial CPC.
* P14: In SN Addition Request Acknowledge message, the candidate SN includes the following information to the MN:

1) List of prepared candidate PSCells and associated candidate SCG configurations, which include the candidate SCG measurement configurations, i.e. as legacy;

2) For each cell in 1), a list of proposed candidate PSCells for the subsequent CPC (e.g., the neighbour PSCells), and associated execution conditions (events A3/A5, based on the candidate SCG measurement configurations).

Note: The proposed candidate PSCells are selected from the recommended cell list provided by the MN, as the legacy.

* P15: The MN checks whether the proposed candidate PSCells for subsequent CPC have been prepared by other candidate SNs, and the MN may initiate an SN Modification procedure to the candidate SN, e.g. when not all proposed candidate PSCells for subsequent CPC have been prepared.
* P16a: In SN Modification Request message, the MN includes the following information to the candidate SN:

Candidate PSCells for subsequent CPC that have been prepared by other candidate SNs.

* P16b: In SN Modification Request Acknowledge message, the candidate SN includes the following information to the MN:

Updated candidate SCG configurations and/or the execution conditions for subsequent CPC, if needed. The detailed signaling is similar to that in SN Addition Request Acknowledge message.

* P17: RAN2 assumes that the coexistence of subsequent CPAC and legacy CPAC is supported. [Check with RAN3]
* P18: RAN2 assumes that the existing signalling flow charts and procedural texts for Rel-17 CPA/CPC procedures can be reused for subsequent CPAC procedure with some modifications. [Check with RAN3]

CONTINUED DISCUSSION

P9

- Chair wonder what the signalling would be like for U1. ZTE think it involves some more signalling for coord.

- MTK think U2 may bring limitations to co-existence, but U1 brings some more signalling.

- HW fthink that we can have coexistence. IN R17 we have both MN configured and SN configured at the same time.

- Nokia wonder if the reference contains both MCG and SCG or just SCG in some case.

- Ericsson think we are discussing rhe maximum no of ref config and agrees we can go with 2.

- Apple think this dep on the format, if we have the same format, we can also use one ref config for both. Vivo think we go with U2 and then after more details disc we can determine if U1 works

- CMCC think U2 is ok

P7

- MTK think that then intra SN and inter SN would have different formats and suggest not to agree P7.

- OPPO think this could work as legacy. LGE agres.

Format:

- vivo wonder if we will continue discussion on the format.

- ZTE think many companies want to allow intra-SN in MN format.

- Apple would prefer to have also intra-SN in MN format. Think this would be simpler. Vivo agrees.

- CATT think that the format question is related to 9a.

- Ericsson think that it would be more complex for the UE to support mixed format cases. MTK agrees, would not like to have both formats used for a UE. QC clarifies that R17 support the mixed format case. MTK think this is different as we now support subsequent CPC. Ericsson agrees and think intra-SN case can become an inter-SN case. OPPO wonder if we then would not support non-MN-involved.

- Session Chair: instead of agreeing P7 P9 etc lets agree instead the UE part and look for consequences if any, later.

* For one UE, for CPC only either MN format or SN format (only intra-SN case is possible) is used
* MN format is supported for intra-SN (in addition to SN format)

*Session Chair: Can discuss if this bring additional consequences, e.g. can discuss for the LS, whether additional things should be clarified to R3.*

13a, 13b agreed as starting point. Can discuss further in the CR work

* P13a: For MN initiated inter-SN subsequent CPAC, in SN Addition Request message, the MN includes the following information to each candidate SN:

- A list of candidate SNs, and for each candidate SN in the list, a list of cells recommended by MN (assume format as legacy)

* P13b: For SN initiated inter-SN subsequent CPAC, in SN Addition Request message, the MN includes the following information to each candidate SN:

A list of candidate SNs, and for each candidate SN in the list, a list of PSCells suggested to be prepared by the candidate SN.

* Postpone 13c

*Session Chair: If further issues are found during the CR work, we can come back.*

* [AT123bis][502][feMob] LS out to R3 on S-CPAC (ZTE)

 Deadline: CB Thursday (if possible)

 CLOSED

R2-2311535 [DRAFT] LS on RAN2 progress on subsequent CPAC ZTE, Sanechips

* LS out is approved in R2-2311331

Security

R2-2311010 Rapporteur summary Post[123][046][feMob] subsequent CPAC security issues Nokia, Nokia Shanghai Bell discussion

P4

- ZTE wonder if we can remove that the UE maintains. Nokia think the UE need to maintain. Chair: think we can further clarify.

P5

- Lenovo think this is should be captured somewhere, e.g. a FD as it is useful fo the UE. NEC agrees.

- Ericsson wonder if the existing value can be used in some case. Apple agrees.

- Nokia agrees that a single sk-counter list is used.

- Chair: can attempt a different wording for P5 offline, and can maybe attempt to progress some more.

* Rel-18 Conditional-Reconfiguration Information element may include

- List of Group-ID (mapping to SN) and associated SK-counter values outside the candidate conditional configurations.

- The Group-ID parameter is included within each candidate conditional configuration(CondConfigAddMod) marked for subsequent CPAC.

* [AT123bis][503][feMob] subsequent CPAC security issues (NOkia)

 Scope: f2f offline, attempt further progress.

 Intended outcome:

 Deadline: CB Thursday

 CLOSED

R2-2311538 Rapporteur summary [AT123bis][503][feMob] subsequent CPAC security issues (Nokia) Nokia

DISCUSSION

- Last one: CMCC has concerns means that the network need to update often. Think the UE shall stop the evaluation if there is no available sk-counter.

- Apple think the network can handle this.

- Session chair think the network should know

- Ericsson think that an error would trigger re-establishemt and this is good.

* Mod P3: UE include the selected SK-counter value in the MN RRC Reconfiguration Complete message when UE selects new SK-counter value as part of S-CPAC execution.
* Mod P4: For Pcell-change /PSCell-change /SCG Release scenarios, if the SCPAC configuration is maintained, UE also maintains the unused SK-counter values.
* RAN2 Understanding: The NW configuration ensures that The SK-counter lists assigned for SCPAC configurations and the SK-counter value assigned for CPAC configurations are uniquely different. No specification changes are needed in this regard.
* No specification changes needed for UE behaviour for the Scenario where free SK-Counter not available at the time of execution. This scenario can be avoided by NW configuration.
* Send Reply LS to SA3 (can add additional context info in the LS if deemed needed for understanding the intentions)

Short post email discussion for the LS

R2-2311002 Subsequent CPAC Huawei, HiSilicon discussion Rel-18 NR\_Mob\_enh2-Core

P2

- Ericsson think it should be generated or received. HW think not.

- ZTE would like to confirm that this is only for SN-format.

P3

- ZTE wonder if this will interrupt MCG transmission. HW think yes. LGE also has concerns on this.

- OPPO wonder of SCG will be released. HW think everything is released but everything in the new configuration shall be done.

- Ericsson are not sure about applying the full configuration, as everything is released.

- Nokia agree that the full configuration aspect need to be checked.

- HW think this is more complex than for LTM and fullconfig is the most simple way.

- MTK think this is a good starting assumption, can agree and discuss if there are problems in the CR work.

- QC think we can just use delta config, or just use legacy procedure. Think we should just leave this to the network. OPPO think we allow network to do whatever it want.

- HW think that for SN configured, fullconfig cannot be set, so release is a but tedious.

- LG want to check more. NEC are ok to disc futher next meeting

*Chair: should resolve next meeting, go for simple solutions*

R2-2311163 Discussion on security issue for subsequent CPAC NTT DOCOMO, INC. discussion

R2-2311147 Remaining issues for security aspects of Subsequent CPAC Sharp discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310337 UE reporting of sk-counter for S-CPAC Apple discussion Rel-18 NR\_Mob\_enh2-Core

General

R2-2309547 Discussion on subsequent CPAC CATT discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309722 Remaining issues for subsequent CPAC vivo discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309835 Remaining issues on subsequent CPAC ZTE Corporation, Sanechips discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309852 Considerations on Subsequent CPAC after SCG Change Samsung discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309908 Discussion on Subsequent CPAC FGI discussion

R2-2309948 Left issues on subsequent CPAC Lenovo discussion Rel-18

R2-2310006 Discussion on issues of subsequent CPAC Spreadtrum Communications discussion Rel-18

R2-2310019 Discussion on Selective Activation of Cell Groups in NR-DC Transsion Holdings discussion Rel-18

R2-2310268 Discussion on remaining open issues for subsequent CPAC CMCC discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310326 Discussion on Subsequent CPAC Apple discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310377 Discussion on open issues for subsequent CPAC in NR-DC OPPO discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310529 Subsequent CPAC in NR-DC Qualcomm Incorporated discussion Rel-18

R2-2310573 Discussion on the evaluation adjustment for SCPAC ITRI discussion NR\_Mob\_enh2-Core R2-2307889

R2-2310620 Discussion on subsequent CPAC Xiaomi discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310647 Discussion on subsequent CPAC NEC discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310873 Discussion on subsequent CPAC MediaTek Inc. discussion NR\_Mob\_enh2-Core R2-2308756

R2-2310890 Discussion on subsequent CPAC Ericsson discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310987 Open issues regarding subsequent CPAC Interdigital Inc. discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311011 Discussion on Measurements, Reference Configuration, Security Issues, and Failure Handling for SCPAC Nokia, Nokia Shanghai Bell discussion

R2-2311096 Stage 2 and 3 issues for Subsequent CPC LG Electronics Inc. discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311148 Discussion on subsequent CPAC Sharp discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311195 Discussion on NR-DC with subsequent CPAC. DENSO CORPORATION discussion Rel-18 NR\_Mob\_enh2-Core

### 7.4.4 CHO including target MCG and candidate SCGs for CPC CPA in NR-DC

RRC CR

R2-2309543 RRC Running CR for CHO with candidate SCGs CATT draftCR Rel-18 38.331 17.6.0 NR\_Mob\_enh2-Core

R2-2309544 RRC Open issue list for CHO with candidate SCGs CATT discussion Rel-18 NR\_Mob\_enh2-Core

General

R2-2309548 Rapporteur proposals to open issues on CHO with candidate SCGs CATT, Huawei, HiSilicon, MediaTek, vivo, Lenovo, OPPO, ZTE Corporation, Sanechips discussion Rel-18 NR\_Mob\_enh2-Core

=> Revised in R2-2311249

R2-2311249 Rapporteur proposals to open issues on CHO with candidate SCGs CATT, Huawei, HiSilicon, MediaTek, vivo, Lenovo, OPPO, ZTE Corporation, Sanechips, Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_Mob\_enh2-Core

P1P2

- Ericsson think we can agree to the latter part. CATT think the first part refers to R17 configuration. Ericsson wonder why this is important. QC agrees.

- QC wonder if this is a case of CPA/CPC and CHO with cand SCG coexist. CATT confirms that this is for a co-existence scenario.

- vivo wonder if we need to have the same behaviour as R17.

chair: some confusion – P1 offline

P4

- Ericsson think there could be a UE capability to support > 8. QC think the max should be 8

* P2: The execution of CHO with candidate SCG is prioritized, if both PCell for CHO only or CHO including target MCG and target SCG, and the PCell and the associated PSCell for CHO with candidate SCG(s) is triggered.
* P4: R2 assumes that the maximum number of conditional reconfigurations maxNrofCondCells (i.e., including the coexistence CHO with candidate SCGs, CHO only, CHO with target SCG, CPA/CPC if present) is 8 in Rel-18. FFS whether any optional additional UE cap for higher number is needed.
* [AT123bis][504][feMob] open issues on CHO with candidate SCGs (CATT)

 Scope: Offline further progress based on R2-2311249 (and related other contributions). Identify “easy agreements” and FFS points for further disc next meeting.

 Deadline: CB Thursday

 CLOSED

R2-2311532 Report of [AT123bis][504][feMob] open issues on CHO with candidate SCGs (CATT) CATT

DISCUSSION

P3

- Nokia would like to go the other way

- Ericsson think it is assumed that the network will provide a CHO-only config as well (due to the design of execution conditions).

- Apple think R18 is not an extension of R17.

- LGE and vivo also support Nokia. Think there is no issue with going the other way, as if SCG is not good then there would be a failure indication.

- HW think this would be complex to handle

- Chair suggests to anyway approve P3, if serious issues are found we can come back.

* P1a: If at least the legacy CPA or CPC was configured, UE removes CHO with candidate SCG configurations when PSCell changes,same as the legacy in the current spec.
* P1b: If the legacy CPA or CPC was not configured, UE does not have to remove the configuration for CHO with candidate SCG(s) autonomously when PSCell changes (i.e. UE just wait and follow the NW signaling).
* P5: The legacy condEventA4 related parameters are provided by the candidate MN to the source MN for the execution condition for candidate PSCell, at least including(FFS more parameters are needed, FFS the parameters are in inter-node message or Xn message),

- a4-Threshold

- hysteresis (optional)

- timeToTrigger (optional)

- rsType (optional)

* P6: For the preparation of the R18 CHO with candidate SCG(s), it is up to RAN3 on the signaling details between S-MN and T-MN. The related RN in the running CR can be removed.
* P3: The configuration for CHO with candidate SCG(s) is not considered for CHO recovery.

R2-2309723 Discussion on CHO with Candidate SCGs vivo discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309836 Remaining issues on CHO with candidate SCG(s) ZTE Corporation, Sanechips discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309872 Discussion on CHO with candidate SCG(s) Huawei, HiSilicon discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309907 Discussion on CHO including target MCG and candidate SCGs FGI discussion

R2-2309932 CHO with candidate SCG for CPAC Lenovo discussion Rel-18

R2-2309981 Considerations on CHO with CPA/CPC Samsung discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310020 Discussion on CHO with candidate SCGs Transsion Holdings discussion Rel-18

R2-2310224 Discussion on open issues of CHO with candidate SCGs China Telecom discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310264 Discussion on CHO with candidate SCGs CMCC discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310378 Discussion on open issues for CHO with candidate SCGs OPPO discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310437 Discussions on CHO with candidate SCGs KDDI Corporation discussion

R2-2310528 CHO with multiple candidate SCGs Qualcomm Incorporated discussion Rel-18

R2-2310621 Discussion on CHO with candidate SCG(s) Xiaomi discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310635 Final details on CHO with CPAC in Rel-18 Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310891 CHO with associated CPC or CPA Ericsson discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310988 Open issues regarding CHO with associated SCG Interdigital Inc. discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311082 On CHO recovery for CHO with candidate SCG MediaTek Inc. discussion NR\_Mob\_enh2-Core R2-2308750

R2-2311097 Simultaneous Execution of CHO and CPAC LG Electronics Inc. discussion Rel-18 NR\_Mob\_enh2-Core

### 7.4.5 Others

Including contributions on improvement to SCell/SCG setup delay

LS in

R2-2309462 LS on improvement on FR2 SCell/SCG setup delay (R4-2314466; contact: Nokia) RAN4 LS in Rel-18 NR\_Mob\_enh2-Core To:RAN2

Moved from 7.4.1

* Noted

General

R2-2310796 eEMR SCell setup delay Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_Mob\_enh2-Core

- Nokia think most from existing EMR can be reused, but not the timer, as the measurements are expected to be started at connection setup.

- Nokia think we can start to work on the RRC CR.

- Ericsson think we can start on the CR and can reuse.

- MTK think this contains a lot of FFS, not sure it is useful to start CR discussion. Can identify R2 impact.

- QC think we cannot really capture anything, based on R4 progress. If R4 progress, we can do something.

- LGE think we can start some work .. but not CR. LGE think measurement configuration is different to EMR.

- Chair think R2 impact is limited, if R4 can conclude it should be possible to have CRs in R2.

* R2 expect to reuse legacy EMR to great extent
* Long email disc to next meeting, identifying R2 impact and attempting RRC Draft CR (Nokia)
* [Post123bis][551][feMob] eEMR SCell setup delay (Nokia)

 Scope: Identify R2 impact and attempting RRC Draft CR (as far as possible / reasonable given R4 progress)

 Intended outcome: Report, draft CR (that can be a baseline)

 Deadline: Next meeting

R2-2310481 Discussion on fast SCell/SCG setup CMCC, Ericsson, ZTE, Huawei, vivo discussion Rel-18 NR\_Mob\_enh2-Core

R2-2309545 Discussion on improvement of FR2 SCell/SCG setup delay CATT discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310535 Discussion on fast Scell setup vivo discussion Rel-18 NR\_Mob\_enh2-Core Late

R2-2310801 Improvement on Scell/SCG setup/resume delay Interdigital, Inc. discussion Rel-18 NR\_Mob\_enh2-Core

R2-2310892 Discussion on early measurements enhancements Ericsson, CMCC discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311078 RAN2 signaling for improvement to SCellSCG setup delay LG Electronics discussion Rel-18 NR\_Mob\_enh2-Core

R2-2311113 Discussion on FR2 SCell/SCG setup delay MediaTek Inc. discussion NR\_Mob\_enh2-Core

## 7.12 Mobile IAB (Integrated Access and Backhaul) for NR

( NR\_mobile\_IAB -Core; leading WG: RAN3; REL-18; WID: [RP-232669](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CTSG_RAN%5CRAN%5CDocs%5CRP-232669.zip))

Time budget: 0.5 TU

Tdoc Limitation: 3 tdocs

### 7.12.1 Organizational

Ls in Rapporteur input, running CRs etc

Workplan

R2-2310188 Updated workplan for Rel-18 mobile IAB Qualcomm Inc. (Rapporteur) Work Plan Rel-18 NR\_mobile\_IAB

- QC think an important issue is the connection to R17 cell etc.

* noted

LS in

R2-2309475 Reply LS CAG solution for mobile IAB (S2-2309998; contact: Ericsson) SA2 LS in Rel-18 NR\_mobile\_IAB-Core, VMR To:RAN2 Cc:RAN3

* noted, no AS impact is assumed

R2-2310897 Conclusions of CAG feature for mobile IAB Ericsson discussion Rel-18 NR\_mobile\_IAB-Core

CRs

BAP

R2-2309826 Running CR for introduction of mobile IAB in TS 38.340 (including open issue list) Huawei, HiSilicon discussion Rel-18 NR\_mobile\_IAB-Core

- HW indicates that this version contains Rap updates and open issues, in addition to latest endorsed version.

* Revised
* [AT123bis][506][mIAB] BAP (HW)

 Scope: progress based on proposals to this meeting and comments

 Intended outcome: Endorsable running CR

 Deadline: CB Thursday

R2-2311284 Running CR for introduction of mobile IAB in TS 38.340 (including open issue list) Huawei, HiSilicon discussion Rel-18 NR\_mobile\_IAB-Core

THIS is the result of [AT123bis][506][mIAB] BAP (HW)

- HW report that there are CR implementation issues to further discuss

- HW report that the clarification(s) for multiple logical DUs may not be needed

- Continue in a short post meeting discussion.

R2-2310082 On impacts to BAP spec CATT, Apple discussion Rel-18 NR\_mobile\_IAB

- HW think this can be taken into account offline.

- Samsung think we should also then include the issue of modelling of multiple DUs R2-2311181.

* Noted

R2-2311181 Mobile IAB node vs IAB node: how to capture the distinction in specifications Samsung R&D Institute UK discussion

* Noted

RRC

R2-2310893 RRC running CR for mobile IAB Ericsson draftCR Rel-18 38.331 17.6.0 B NR\_mobile\_IAB-Core

- Ericsson indicate that RACH-less is now covered, and it is consistent with overlapping NTN parts.

R2-2310894 RRC open issues list for mobile IAB Ericsson discussion Rel-18 NR\_mobile\_IAB-Core

UE Caps

R2-2310120 38.306 running CR for mobile IAB capabilities Nokia, Nokia Shanghai Bell draftCR Rel-18 38.306 17.6.0 NR\_mobile\_IAB-Core

R2-2310121 38.331 running CR for mobile IAB capabilities Nokia, Nokia Shanghai Bell draftCR Rel-18 38.331 17.6.0 NR\_mobile\_IAB-Core

Post meeting discussion, to check the NTN MAC CR, BAP, and Stage-2, And 304

### 7.12.2 Mobility Enhancements

Enhancements for mobility of an IAB-node together with its served UEs.. [RAN3, RAN2]

#### 7.12.2.1 Connected mode

##### 7.12.2.1.1 Reuse of NR NTN RACH-less Handover

Tdoc Limitation: 0

Reuse of NR NTN RACH-less handover is assumed. Modifications of or difference in procedure specifically for mIAB need to be determined (mIAB-specifics only when/if there is a need). There will be offline reivews to assess potential impacts etc. CR rapporteurs (MAC: Samsung, RRC: Ericsson, UE capabilities: Nokia, Stage-2: QC) are encouraged to work with their NR NTN coutnerparts and are invited to input on the potenital TS impacts, and CR strategies (e.g. CR common mIAB/NR NTN, or mIAB CR copy-paste from NR NTN CR etc), and otther aspects as needed. Others are expected to input at the meeting.

Treat online (Third)

General

R2-2310302 Remaining issues on CONNECTED mobility in mobile IAB Apple discussion Rel-18 NR\_mobile\_IAB-Core

MAC

R2-2311179 IAB MAC rapporteur views on MAC impact of RACH-less HO for mIAB and alignment with NTN Samsung R&D Institute UK discussion

Moved from 7.12.1

DISCUSSION

- QC think we need to focus on the delta to NTN. We don’t need to confirm every NTN agreement.

- Ericsson would prefer to have a separate MAC CR as for mIAB it is only RACH-less.

* R2 assumes that for MAC we will work on a joint NTN mIAB CR, FFS if we split into separate CRs in the end.
* R2 assumes that for RRC there will be separate NTN and mIAB CRs that need to be kept consistent.
* UE caps FFS (can discuss next meeting)

* [AT123bis][507][mIAB] Support of RACH-less HO (Samsung)

 Scope: Focus on the necessary delta to NTN (e.g. no need to confirm every NTN agreement for mIAB). Review proposals in RRC CR, in R2-2311179 (and other relevant docs if needed).

 Deadline: CB Thursday

 CLOSED

R2-2311286 Report from [AT123bis][507][mIAB] Support of RACH-less HO (Samsung) Samsung

* P1a. timeAlignmentTimer is restarted at every reception of HO command containing the RACH-less configuration (confirms existing mIAB agreement; excludes any further NTN-specific changes such as TA value range).
* P1b-1. The network indicates that NTA in the target cell is identical to the source cell (confirms existing mIAB agreement).
* P1c. Unchanged PCI scenario (as discussed for NTN) is not applicable to mIAB.
* P3a. Configured uplink grant (type1) should be discarded when the corresponding configured uplink grant configuration is released by RRC.
* P3d. When rach-LessHO is configured, and if configured grant is not configured, the UE will monitor the PDCCH.
* P4a. For mIAB RACH-less HO, the target cell beam information is explicitly included in HO command (confirms existing mIAB agreement).
* P4b. For RACH-less HO in mIAB, it is left to network implementation whether the network selects a beam (to indicate to the UE) based on the UE measurement report, or the network uses implicit knowledge to select a beam (to indicate to the UE).
* P1b-2 The case where NTA explicitly provided by the network is 0 is not applicable to mIAB.
* (Follow NTN WI:) successful reception of UE’s first UL data based on receiving a PDCCH addressing the UE’s C-RNTI in the target cell scheduling a new transmission as the first UL transmission (can be either DL assignment or UL grant addressed to same HARQ process for the new transmission)

DISCUSSION

TCI State / Beam selection

- Ericsson think we don’t need to UE to select beam, and we can skip the beam selection. HW agrees,

- Nokia sympathise but think the threshold can be there anyway

- HW think maybe mIAB and NTN would have same UE cap and should support the same RACH less functions

- Session chair: we can agree just an observation and We resolve P3b, P5a next meeting

* Observation: for mIAB, the network can always provide a beam indication

RRC

R2-2310895 Rapporteur resolution proposals for mIAB RRC open issues Ericsson discussion Rel-18 NR\_mobile\_IAB-Core

##### 7.12.2.1.2 Other

Including Open Issues (identification of, resolution to), if any. Stage-3 progress (pl illustrate with TPs. Please see Running CRs.

Chair: On new (not-yet-agreed) proposals, there has previously been some interest for time-based CHO (which can be discussed one more round). Other new (not-yet-agreed) proposals, are not expected to be treated.

R2-2311132 Time-based CHO enhancement for Mobile IAB AT&T discussion

R2-2309798 Remaining issues of mobility enhancements for mobile IAB NEC Corporation discussion Rel-18 NR\_mobile\_IAB-Core

R2-2310122 Connected mode issues for mobile IAB Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_mobile\_IAB-Core

R2-2310190 Enhancements for mobile IAB connected mode mobility Qualcomm Inc. discussion Rel-18 NR\_mobile\_IAB

R2-2310630 Discussion on mIAB connected mode aspects Samsung Electronics Polska discussion Rel-18 NR\_mobile\_IAB

R2-2311077 Resolving open issues - CondEventT1 and mIAB indication during connection setup LG Electronics discussion Rel-18 NR\_mobile\_IAB-Core

R2-2309827 Connected mode enhancement for mobile IAB Huawei, HiSilicon discussion Rel-18 NR\_mobile\_IAB-Core

R2-2309939 Mobility enhancements for mobile IAB-node and its connected UE Lenovo discussion Rel-18

R2-2309972 Discussion on mobility enhancement for UE in connected mode ZTE, Sanechips discussion Rel-18 NR\_mobile\_IAB-Core

R2-2310025 Mobile IAB general aspects and mobility enhancement for connected UEs Intel Corporation discussion Rel-18 NR\_mobile\_IAB

R2-2310303 UE on-board status identification and reporting Apple, Huawei, HiSilicon, Lenovo, CATT, InterDigital Inc. discussion Rel-18 NR\_mobile\_IAB-Core R2-2307822

#### 7.12.2.2 Idle/Inactive mode

Including Open Issues (identification of, resolution to), if any. Stage-3 progress (pl illustrate with TPs). Please See Running CRs.

R2-2311076 Cell reselection and PCI list of IAB cells LG Electronics discussion Rel-18 NR\_mobile\_IAB-Core

* [AT123bis][508][mIAB] Cell reselection and PCI list of IAB cells (LGE)

 Scope:

 Intended outcome: Agreeable points

 Deadline: CB Thursday

 CLOSED

R2-2311573 [AT123bis][508][mIAB] Cell reselection and PCI list of IAB cells (LGE) LS Electronics

DISCUSSION

P5

*Proposal5: To decide one the alternatives:*

*Alt1) UE may prioritize mIAB cell configured as CAG cell irrespective of the reselection priority of the cell*

*Alt2) UE shall only follow network-configured frequency priorities.*

- Possibly no impact anyway. Possibly a note to clarify some case.

- Session Chair: Can consider for next meeting whether there is any issue to resolve

P9

*Proposal9: To discuss whether to Introduce mIAB cell assistance for inter-RAT idle mode mobility from E-UTRAN to NR, e.g., in LTE SIB24.*

- Samsung think this is useful. HW think there is no use case for this, not needed. Intel also think it is not needed, mIAB will not be supported for LTE.

- Sessio nChair: can consider but need more support to be agreed.

* P1: mIAB PCI list is optional present (i.e., not mandatory) for indicated mIAB frequency (confirming that mIAB PCI list is introduced)
* P7: it is left to UE implementation to determine an actual prioritized frequency among frequencies that can be prioritized for mIAB cell/HSDN/MBS/SL/V2X?
* P8: Existing Note 0c in TS 38.304 is applicable for the prioritization between mIAB cell/HSDN/MBS/SL/V2X. So, no or marginal additional specification work is needed.
* FFS:

P2: To discuss further  if mIAB PCI list is not necessarily exclusive, i.e., the PCI list may or may not include PCIs of non-mIAB cell.

P3: To discuss further if mIAB PCI list is not necessarily complete, i.e., the PCI list may or may not include all possible mIAB PCIs.

R2-2309828 Idle/Inactive mode mobility enhancement for mobile IAB Huawei, HiSilicon discussion Rel-18 NR\_mobile\_IAB-Core

R2-2309940 Mobility enhancement for UE in idle or inactive mode Lenovo discussion Rel-18

R2-2309973 Discussion on mobility enhancement for UE in idle or inactive mode ZTE, Sanechips discussion Rel-18 NR\_mobile\_IAB-Core

R2-2310026 UE cell (re)selection and mIAB CAG Intel Corporation discussion Rel-18 NR\_mobile\_IAB

R2-2310075 Cell reselection prioritization for mobile IAB cells Samsung Guangzhou Mobile R&D discussion

R2-2310081 Idle mode mobility for mobile IAB CATT discussion Rel-18 NR\_mobile\_IAB

R2-2310123 Cell reselection issues for UEs in mobile IAB scenarios Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_mobile\_IAB-Core

R2-2310191 Enhancements for mobile IAB idle and inactive mode mobility Qualcomm Inc. discussion Rel-18 NR\_mobile\_IAB

R2-2310304 Remaining issues on IDLE INACTIVE mobility in mobile IAB Apple discussion Rel-18 NR\_mobile\_IAB-Core

R2-2310589 Discussion on the mIAB access to the network Xiaomi discussion Rel-18 NR\_mobile\_IAB-Core

R2-2310590 Assistance information for prioritizing mobile IAB cell Xiaomi discussion Rel-18 NR\_mobile\_IAB-Core

R2-2310773 Mobile IAB cell indication to UE behaviour Sony discussion Rel-18 NR\_mobile\_IAB

R2-2310896 Indication of DU-migration to UEs in IDLE and INACTIVE Ericsson discussion Rel-18 NR\_mobile\_IAB-Core

R2-2311018 UE cell reselection prioritization for mobile IAB SHARP Corporation discussion Rel-18 R2-2308581

R2-2311067 IDLE/INACTIVE mode mobility enhancements for mobile IAB Kyocera discussion Rel-18 R2-2308110

R2-2311075 Access restriction for mIAB cell LG Electronics discussion Rel-18 NR\_mobile\_IAB-Core

R2-2311133 Inter-frequency cell reselection enhancements for Mobile IAB AT&T discussion

PCI list

### 7.12.3 Other

Procedures for migration/topology adaptation to enable IAB-node mobility [RAN3, RAN2].

Mitigation of interference due to IAB-node mobility. [RAN3, RAN2]. Note that on PCI collision, RAN2 agreed that further work on this matter would be based on LS by RAN3. Note that on RACH interference and collisions RAN2 agreed that this better be handled between RAN3 and RAN1. Chair: THUS it is not clear whether any interference-mitigation paper would be treated without LS.
Including UE capabilites. Including outcome of [Post123][051][mIAB] Running CRs UE caps (Nokia).

General

Treat online (first)

R2-2310189 Mobile IAB-node connecting to Rel-16/17 IAB cell Qualcomm Inc. discussion Rel-18 NR\_mobile\_IAB

DISCUSSION

- HW think this is up to the network.

- ZTE think that in any case a iab node can have both capabilities.

* From R2 perspective It is not supported that Rel-18 mobile IAB-node concurrently operate as a Rel-16/17 IAB-node, as e.g. mobile-IAB doesn’t support child IAB nodes.
* This means that there are restrictions for the network in configuring concurrent use of R-18 mIAB feature(s) and rel-16/17 IAB features (details FFS).
* FFS if an IAB-node may send both MSG5 indications to the network, and the network decides (or if the IAB-node should decide).

R2-2310591 Clarification on the mIAB connection to the legacy IAB-donor Xiaomi discussion Rel-18 NR\_mobile\_IAB-Core

* Noted

UE capabilites

Treat online (second)

R2-2310124 Summary of [Post123][051][mIAB] Running CRs UE caps (Nokia) Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_mobile\_IAB-Core

DISCUSSION P1

- QC think Msg5 indication is a preference indication for AMF selection. Capability is different to this.

- CATT think that MSG5 indicates UE capability and this is thus not needed in UE capabilities. Ericsson think the purpose is different, and think we need such capability for Xn handover (for which the UE cap container is used).

- ZTE think a mIAB node shall check the IAB bcast indication and adjust cell reselection behaviour accordingly. Samsung agrees. HW think this is idle mode and we don’t need signalling.

- Intel think the new cap is used at handover, and think that it may imply restrictions in configuring DC etc.

- Ericsson think that for handover it is needed to know whether the mIAB MT support mIAB or not, so this capability is needed. HW think this can all be resolved by RAN3 signalling.

* RAN2 assumes that the mobileIAB-NodeIndication-r18 in Msg5 implies a preference/intention, with the purpose to help gNB select core network node at initial registration.
* RAN2 assumes that the MT Idle mode behaviours is reflected by a Cap wo signalling in 38306.
* FFS if a separate mobile-IAB capability (signalled) is introduced in Rel-18.

R2-2309829 Open issues on UE capability and RANU for mobile IAB Huawei, HiSilicon discussion Rel-18 NR\_mobile\_IAB-Core

R2-2309974 Discussion on remaining issues for mobile IAB ZTE, Sanechips discussion Rel-18 NR\_mobile\_IAB-Core

R2-2310027 Discussion on mIAB-MT UE capability Intel Corporation discussion Rel-18 NR\_mobile\_IAB

R2-2310083 On UE capabilities for mIAB CATT discussion Rel-18 NR\_mobile\_IAB

Lower priority

R2-2310774 PCI collision in mobile IAB Sony discussion Rel-18 NR\_mobile\_IAB

## 7.22 Study on low-power wake-up signal and receiver for NR

(FS\_NR\_LPWUS; leading WG: RAN1; REL-18; WID: [RP-232672](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CTSG_RAN%5CRAN%5CDocs%5CRP-232672.zip))

Time budget: 0.5 TU

Tdoc Limitation: 2 tdoc

### 7.22.1   Organizational

Incoming LSs, Rapporteur input etc.

R2-2309737 Update of TR 38.869 for LP-WUS WUR vivo (Rapporteur) discussion Rel-18 FS\_NR\_LPWUS

- vivo explains this is the same version as last meeting, encourage to comment directly to rapporteur.

- Nokia wonder if R2 would make a recommendation?

- vivo think for next meeting we may need to complement the recommendation from R1.

* Noted for now

### 7.22.2   Idle Inactive Mode

R2-2309735 Discussion on LP-WUS WUR in RRC\_IDLE INACTIVE vivo discussion Rel-18 FS\_NR\_LPWUS

R2-2310313 RAN2 impact of LP-WUS in RRC\_IDLE/INACTIVE state Apple discussion Rel-18 FS\_NR\_LPWUS

R2-2309493 Use of low-power receiver in RRC Idle/Inactive Qualcomm Incorporated discussion Rel-18 FS\_NR\_LPWUS

R2-2309536 Discussion on LP-WUS in RRC\_IDLE/INACTIVE OPPO discussion Rel-18 FS\_NR\_LPWUS

R2-2309818 Further considerations on LP-WUS in RRC\_IDLE&INACTIVE states CATT discussion Rel-18 FS\_NR\_LPWUS

R2-2309858 LP-WUS in RRC\_IDLE/INACATIVE LG Electronics Inc. discussion Rel-18 FS\_NR\_LPWUS

R2-2310039 General considerations on the procedure for RRC\_IDLE\_INACTIVE Xiaomi Communications discussion

R2-2310062 Discussion on LPWUS in RRC\_IDLE INACTIVE NEC Corporation. discussion Rel-18 FS\_NR\_LPWUS

R2-2310483 Remaining issues on LP-WUS in RRC\_IDLE/INACTIVE state Huawei, HiSilicon discussion Rel-18 FS\_NR\_LPWUS

R2-2310722 LP-WUS in RRC IDLE and INACTIVE Nokia, Nokia Shanghai Bell discussion Rel-18 FS\_NR\_LPWUS

R2-2310778 Considerations on LP-WUR in RRC Idle/Inactive mode Sony discussion Rel-18 FS\_NR\_LPWUS

R2-2310827 Remaining issues of LP-WUS in idle or inactive mode ZTE Corporation, Sanechips discussion Rel-18 FS\_NR\_LPWUS

R2-2311064 LP-WUS/WUR for RRC Idle and Inactive Ericsson discussion Rel-18 FS\_NR\_LPWUS

R2-2311171 On impact to IDLE/INACTIVE procedures to support LP-WUR Samsung R&D Institute India discussion Rel-18

R2-2311216 LP-WUS in RRC Idle/ Inactive Mode Lenovo discussion FS\_NR\_LPWUS

### 7.22.3   Connected Mode

R2-2309492 Summary of [Post123][060][LPWUS] Low-power receiver in RRC Connected (Qualcomm) Qualcomm Incorporated discussion Rel-18 FS\_NR\_LPWUS

DISCUSSION P1 P2

- P1: VDF think this is MR active time

- LG are not sure we need to relate LP-WUS to DRX. Think the most basic operation is to just turn on the MR.

- CATT think these are good baseline.

- Ericsson think we cannot discuss everything but also think we will not be able to converge on detailed solution.

- Chair asks if R1 has assumed whether any PDCCH monitoring is done in MR “sleep” state. Vivo think MR will not monitor PDCCH at all unless triggered by LP-WUS.

Chair asks if something like the following can be agreed: R2 further assumes that such LP-WUS indication may be necessary to trigger any MR PDCCH monitoring, i.e. UE not reachable by MR PDCCH without the LP-WUS trigger (FFS detailed conditions).

- Apple think that LP-WUS is also for latency, and think that LP-WUS could be use to wake up the UE when the UE is in PDCCH skip state.

- Nokia think also UL transmission may trigger PDCCH monitoring.

P1

- Lenovo wonder if one intention is to replace DCP. QC confirms that this was proposed.

P2

- OPPO think that LP-WUS can be used to make the UE minor PDCCH in a PDCCH skipping duration.

* RAN2 assumes that the Intention with LP-WUS indication in connected is to trigger MR PDCCH monitoring.
* Option 1: to relate LP-WUS with DRX: Network can configure LP-WUS outside MR DRX active time. In that case, LP-WUS can trigger MR PDCCH monitoring to start procedures related to DRX timer(s). FFS which timer and whether/how it may co-exist with R16 DCP.

Can CB online to P4 if time

* UL transmission by MR also triggers PDCCH monitoring by MR.

R2-2309842 Further considerations on LP-WUS in RRC\_CONNECTED Huawei, HiSilicon discussion Rel-18 FS\_NR\_LPWUS

DISCUSSION

*Proposal 1: It should be known by the gNB whether the UE currently is monitoring LP-WUS by LR or monitoring PDCCH by MR.*

- P1: CATT think it is too early to decide. Think the network can send both. Reluctant to agree now. Ericsson agrees. QC as well. QC think the main knowledge the network needs is if the UE is in coverage of the LP-WUS.

- ZTE think connected and Idle may be different. ZTE think that the network activates explicitly LP-WUS monitoring.

- *Chair: seems P1 is not agreeable as is, there seems to be some consensus that there is some network control and some UE actions (e.g. taken when UE goes out of LP-WUS coverage) FFS details.*

P2.2

- LG is ok

- Apple think there is no R2 impact.

- *Chair: Also for this case there may be a new timer for LP-WUS, and we may choose to put this in MAC, so use the word “current” for now, it seems the main differentiator is to not use DRX.*

* Option 2: to have LP-WUS transparent to current MAC operation (might not have impact to MAC)

*Chair: No intention to down-select these options in the SI.*

R2-2311068 LP-WUS/WUR for RRC Connected Ericsson discussion Rel-18 FS\_NR\_LPWUS

* noted

RRM

- Session Chair think that all R2 mobility procedures (incl Handover, Cell reselection etc) requires MR. Question if this need to be studied in R2. Ericsson think not. Vivo think that R4 only discuss RRM serving cell meas for Idle so far.

- Lenovo think RRM is more than measurements and we should be careful.

*Session Chair: Suggests we assume no substantial impact in SI and no need to discuss RRM in R2 in SI phase (for connected mode at least).*

* [AT123bis][510][LP-WUS] connected mode (vivo)

 Scope: Can consider additional option (if support is significant), Can consider to describe the options a little but better, identify open points that should be addressed/clarified in the SI. Can consider to capture pros/cons for each option. Can consider capture something related to duty-cycled, continuous modes.

 Intended outcome:

 Deadline: CB Friday

[R2-2311336](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CRAN2%5CDocs%5CR2-2311336.zip) Summary of [AT123bis][510][LP-WUS] connected mode (vivo) vivo

- CATT think we should reduce the options. P2 and P4 are very similar the way they are written. LGE agrees. Vivo think we can do that in the TP phase.

- QC cannot agree P5 P6 – confusing, and also P7 not ready to conclude yet. Vivo can agree to remove P6 and P7 as there are FFS proosals

- Sony think P2 and P4 are different.

- VDF think P10 is covered by P8

- Lenovo think that P2 intends to use DRX inactivity timer.

* P1: Capture the LP-WUS using option that LP-WUS has similar functionality as Rel-16 DCP in TR.
* P2: Capture the LP-WUS using option that LP-WUS could be used at any time outside DRX active time to indicate UE to enter into active time in TR.
* P3: FFS whether to capture the LP-WUS using option that LP-WUS could be used after the beginning of drx-onDurationTimer in TR.
* P4: Capture the LP-WUS using option that LP-WUS could be used when C-DRX is not configured in TR and FFS the detail.
* P8: FFS whether it is possible that LP-WUS and DCP are configured for a UE and UE use only one of them at any time e.g. depend on network configuration or link quality.
* P9: FFS whether LP-WUS could be used in conjunction with DCP.
* P12. Capture the pros/cons and RAN2 impacts for duty cycle and continuous mode for LP-WUS in TR.

Long email discussion for TR update.

 - Vivo wonder if we can also have some progress for Idle mode. Wonder if it could be possible to add proposals to the TR for treatment next meeting.

* For the long email discussion on the TR, can also add some limited progress for Idle mode, e.g. the general dependency LP-WUS information carrying capability -> functionality, for confirmation/agreement next meeting.

R2-2309530 Discussion on LP-WUS in RRC Connected OPPO discussion Rel-18 FS\_NR\_LPWUS

R2-2309736 Discussion on LP-WUS WUR in RRC\_Connected vivo discussion Rel-18 FS\_NR\_LPWUS

R2-2309819 LP-WUS co-existence with DCP in RRC\_CONNECTED state CATT discussion Rel-18 FS\_NR\_LPWUS

R2-2310040 Discussing on LP-WUS monitoring for RRC\_Connected Xiaomi Communications discussion

R2-2310061 Discussion on LPWUS in RRC\_CONNECTED NEC Corporation. discussion Rel-18 FS\_NR\_LPWUS

R2-2310314 RAN2 impact of LP-WUS in RRC\_CONNECTED state Apple discussion Rel-18 FS\_NR\_LPWUS

R2-2310442 Discussion on LP-WUS for Connected LG Electronics Inc. discussion FS\_NR\_LPWUS

R2-2310828 Remaining issues of LP-WUS in connected mode ZTE Corporation, Sanechips discussion Rel-18 FS\_NR\_LPWUS

R2-2310877 On Low-power WUS in RRC\_CONNECTED Nokia, Nokia Shanghai Bell discussion FS\_NR\_LPWUS

R2-2311172 On impact to Connected mode procedures to support LP-WUR Samsung R&D Institute India discussion Rel-18

R2-2311217 LP-WUS in RRC Connected Mode Lenovo discussion FS\_NR\_LPWUS