3GPP TSG-RAN WG2 Meeting #131bis draft R2-2507702

Prague, Czech Republic, Oct. 13th-17th

Source: RAN2 Vice Chairman (CATT)

Title: Report from session on Rel-18 MIMO, Rel-19 MIMO, LPWUS, SBFD, NR Others

Agenda item: 11.2

## Organizational email discussion

* [AT131bis][200] Organizational – Rel-18 MIMO, Rel-19 MIMO, LPWUS, SBFD, NR Others (RAN2 VC)

Scope:

a) Share plans for online/offline discussions during the meeting, and

b) Share draft session notes and agreements for review

#### 7.0.2.13 NR MIMO evolution

(NR\_MIMO\_evo\_DL\_UL-Core; leading WG: RAN1; REL-18; WID: [RP-233028](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_98e/Docs/RP-223276.zip))

R2-2506731 Reply LS on maximum transmission power for STxMP (R4-2511781; contact: vivo) RAN4 LS in Rel-20 NR\_MIMO\_evo\_DL\_UL-Core To:RAN1 Cc:RAN2

* Noted

On dependency of group-based beam reporting

R2-2507547 Correction on dependency of group-based beam reporting Nokia CR Rel-18 38.331 18.7.0 5543 - F NR\_MIMO\_evo\_DL\_UL-Core

Discussion

- Qualcomm think this CR is correct so agree.

R2-2507548 Correction on dependency of group-based beam reporting Nokia CR Rel-19 38.331 19.0.0 5544 - A NR\_MIMO\_evo\_DL\_UL-Core

* The two CRs above are in principle agreed.

# 8 Rel-19

## 8.4 Low-power wake-up signal and receiver for NR (LP-WUS/WUR)

(NR\_LPWUS-Core; leading WG: RAN1; REL-19; WID RP-251200)

Time budget: 0 TU

Tdoc Limitation: 3 tdocs

### 8.4.1 Organizational

LS, Rapporteur input, etc.

R2-2506727 LS on allocation of CN assigned subgroup ID for LP-WUS (R3-255941; contact: NTT DOCOMO) RAN3 LS in Rel-19 NR\_LPWUS-Core To:SA2 Cc:RAN2, RAN1

* Noted

38.304

R2-2506862 List of open issues for LP-WUS 38.304 CR CATT discussion Rel-19 NR\_LPWUS-Core

* Noted

R2-2506861 Corrections on LP-WUS in TS 38.304 CATT CR Rel-19 38.304 18.4.0 0447 - F NR\_LPWUS-Core

* Endorsed
* [Post131bis][207][LPWUS] CR for TS 38.304 (CATT)

Intended outcome: Update the CR for endorsement

Deadline: Short

38.331

R2-2507008 LPWUS RILs resolutions (based on review file v17) vivo discussion Rel-19 NR\_LPWUS-Core

* Noted
* All the RILs marked with PropAgree are agreeable, will be reflected in the RRC CR

R2-2507007 Miscellaneous corrections on RRC for Rel-19 LP-WUS WUR vivo (Rapporteur) CR Rel-19 38.331 19.0.0 5503 - F NR\_LPWUS-Core

* Endorsed
* [Post131bis][208][LPWUS] CR for TS 38.331 (vivo)

Intended outcome: Update the CR for endorsement

Deadline: Short

38.321

R2-2507104 Open issues on Rel-19 LPWUS 38.321 CR Apple(Rapporteur) discussion Rel-19

* Noted

*Proposal 2: Confirm UE does not monitor LP-WUS when short DRX cycle is used in either DRX group when secondary DRX group is configured.*

*Proposal 3: Confirm UE enables the LP-WUS monitoring only based on RRC configuration.*

*Proposal 4: Confirm in Option 1-2 when UE is in CDRX active time but LP-WUS monitoring timer is not running, the legacy UE operation on CSI/SRS transmission in active time is applied.*

*Proposal 5: Confirm in Option 1-2 when UE is in CDRX active time and LP-WUS monitoring timer is running, the legacy UE operation on CSI/SRS transmission in active time is applied.*

P2

- Qualcomm wonder is this for O1-1 or O1-2. Apple think it is for O1-1, and think there is no impact to MAC if we agree with P2. NEC agree with the principle but see some impact to at least stage 2 spec.

* For Option 1-1, confirm UE does not monitor LP-WUS when short DRX cycle is used in either DRX group when secondary DRX group is configured.

P3

- Nokia think this is related to some discussions under RRC topic.

- Xiaomi think the intention here is to exclude the option of enabling/disabling via L1/L2 signaling. Ericsson, Huawei, OPPO share this understanding.

* Activation/deactivation of LP-WUS monitoring via L1/L2 signaling is not supported.

P4

- Ericsson think it is generally ok but the ‘legacy operation’ may not be crystal clear.

- Apple think there is MAC spec impact if we agree. Xiaomi not sure.

- vivo think we should agree P4 and discuss remaining details in CR.

* Confirm in Option 1-2 when UE is in CDRX active time but LP-WUS monitoring timer is not running, the legacy UE operation on CSI/SRS transmission in active time is applied.

P5

- vivo think the behaviour is not the same as the legacy.

* Confirm in Option 1-2 when UE is in CDRX active time and LP-WUS monitoring timer is running, the legacy UE operation on CSI/SRS transmission in active time other than when OnDurationTimer is running is applied.
* [Post131bis][209][LPWUS] CR for TS 38.321 (Apple)

Intended outcome: Update the CR for endorsement

Deadline: Short

The following 5 contributions are moved to 8.4.4

R2-2507639 Miscellaneous corrections for LP-WUS Ericsson CR Rel-19 38.300 19.0.0 1046 - F NR\_LPWUS-Core Revised

R2-2507640 Miscellaneous corrections for LP-WUS Ericsson CR Rel-19 38.300 19.0.0 1046 1 F NR\_LPWUS-Core R2-2507639

R2-2507369 Open issue of LP-WUS in TS37.340 ZTE Corporation, Sanechips report Rel-19 NR\_LPWUS-Core

R2-2507370 Correction on LP-WUS in TS 37.340 ZTE Corporation, Sanechips, Xiaomi CR Rel-19 37.340 19.0.0 0424 - F NR\_LPWUS-Core

R2-2507156 List of open issues for Rel-19 LP-WUS UE capabilities Huawei, HiSilicon (Rapporteur) discussion Rel-19

### 8.4.2 RRC issues

Issues related to RILs, other remaining RRC issues

Co-existence of LP-WUS in idle/inactive and paging adaptation (C026)

R2-2506864 [C026] Co-existence of LP-WUS with paging adaptation CATT discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1: Support the co-existence of LP-WUS and paging adaptation in RRC\_IDLE/INACTIVE.*

*Proposal 2: lpwus-PoNumPerLo-r19 is common for both legacy paging and Rel-19 paging adaptation.*

*Proposal 3: Separate lpwus-LoFrameOffsetList-r19 is introduced for Rel-19 paging adaptation.*

*Proposal 4: If separate parameter for paging adaptation with LP-WUS, i.e., separate lpwus-LoFrameOffsetList, is signaled in system information, a UE supporting paging adaptation and LP-WUS can monitor the LP-WUS occasion according the parameters.*

R2-2507009 [V001-V006, C026, H053/054, E036] Discussion on RRC open issues for LP-WUS WUR vivo discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 9: (C026) LP-WUS could coexist with all Rel-19 features, unless critical issue is identified, detailed spec change discussed in CR phase.*

Discussion

- CATT think with the main session agreement we should further discuss the detailed impact.

- Nokia think R1 may be discussing this also.

* [AT131bis][201][LPWUS] Impact with co-existence with LPWUS and paging adaptation (CATT)

Scope: Discuss the potential impact if LPWUS and paging adaptation are configured at the same time, to reach the same understanding on the impact, also on whether specification work is needed

 Intended outcome: Summary in R2-2507731.

 Deadline: before Thursday CB

R2-2507731 Impact with co-existence with LPWUS and paging adaptation

* Noted
* RAN2 confirms that LP-WUS and paging adaptation can be configured and used together.

P2

- OPPO thinik O2 is clearer so prefer it. Ericsson, NEC, LG E also support O2.

- Xiaomi think O2 is ok in general, but want to check whether there is additional issue since now it extend the length of the list to 8.

- ZTE wonder if we go O2 whether we need to extend the length of the list, and not sure if there is R1 impact. Vivo think no impact to R1.

* Separate LP-WUS configuration for legacy UEs and UEs supporting paging adaptation. Introduce a separate lpwus-LoFrameOffsetList configuration for LP-WUS with paging adaptation.

Empty UAI for report for LP-WUS time offset (E009, V001, C031, Z052)

R2-2506863 [E009][H050][V001][C031][H055]Discussion on RRC open issues CATT discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1: If the UE has no preference on offset for LP-WUS monitoring of the cell group, the UE do not include timeOffset in the LPWUS-OffsetPreference IE.*

R2-2507041 Discussion on [RIL] O701 Whether UE can report an empty preference time offset OPPO discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1 RAN2 discuss and decide the following options on whether allow UE report an empty preference time offset to NW:*

*Option1: It is allowed to report an empty preference time offset for LP-WUS monitoring to NW and adopt the TP1 in Appendix.*

*Option2: It is not allowed to report an empty preference time offset for LP-WUS monitoring to NW and adopt the TP2 in Appendix.*

Discussions

- OPPO prefer Option 1.

- Xiaomi, ZTE, Ericsson agree with CATT P1, since this is similar as legacy way.

- Nokia think if UE support this feature then UE should always have some value to report, so prefer Option 2.

* If the UE has no preference on offset for LP-WUS monitoring of the cell group, the UE do not include timeOffset in the LPWUS-OffsetPreference IE.

UAI for disabling LP-WUS (H050, E043)

R2-2507331 [H050][H053][H054][H055] Discussion on LP-WUS RILs Huawei, HiSilicon discussion Rel-19 Late

* Noted

*Proposal 1: UE can send UAI to the network indicating to disable the LP-WUS functionality or whether the LP-WUS can be enabled again.*

*Proposal 2: When to send the UAI is up to UE implementation, without additional trigger conditions/thresholds.*

R2-2507626 LP-WUS issues (E035, E036, E037, E043, 38304-2, C026) Ericsson discussion Rel-19 NR\_LPWUS-Core Late

* Noted

*Proposal 9 NW can configure an exit condition for LP-WUS monitoring in connected mode based on RLM/BFD measurements.*

R2-2507236 Discussion about LP-WUS RILs H050, E043, C026, V001, Z052 and V002 ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1 [H050, E043] UE is able to notify network about its preference on whether to apply LP-WUS mechanism, preferably, via UAI.*

R2-2507344 Discussion about LP-WUS RILs E034, E035, E037, E043, V002, H050, H053, H054 Nokia discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 2: [H050, E043] The NW can configure LR measurement triggering condition for UAI for LP-WUS.*

R2-2507350 Discussion on RIL in LP-WUS RRC Qualcomm Incorporated discussion NR\_LPWUS-Core

* Noted

*Proposal 1 For both of Option 1-1 and Option 1-2, UE needs to indicate to the gNB when the UE enters or leave LP-WUS mode.*

*Proposal 2 For option 1-2, gNB needs to send a switching command to UE in order for UE switching from LP-WUS mode to legacy PDCCH monitoring with/without DCP.*

Discussions

- InterDigital ok with the Nokia proposal.

- Huawei think this proposal is for the connected state. Qualcomm think this is to handle the rather frequent cases when UE moves.

- Samsung disagree with this new UAI and think we can rely on NW configuration.

- Xiaomi think for the connected state the NW has some info about the radio condition, so not sure why UAI is critical here. NEC agree with Huawei proposal, and think NW may not know the LR measurement well.

- Ericsson think the use case of this proposed UAI is not so clear, and think if UE is moving fast this UAI may not be timely and helpful to the NW.

Discussions in CB session

- Ericsson not sure how such UAI, if introduced, is triggered by UE, and think simply relying on UE implementation is not so clear solution. InterDigital, Nokia share this view, and think UE behaviour should be specified.

- OPPO do not think there is an issue w/o such UAI. Nokia think there is issue since NW has no idea about whether UE can receive the LPWUS, and also UE may keep monitor even if it is out of LPWUS coverage.

- Qualcomm think the trigger should be when UE moving out of the LPWUS coverage. Xiaomi think there is no LR measurement for UEs in connected state so this does not work. LG E think for the case described by Qualcomm, NW/UE can rely on measurement report. Nokia, InterDigital think it is difficult to only leave it to NW implementation.

- ZTE think in the offline discussions everyone think there is an issue.

- Qualcomm think we can just close this issue by rejecting the RILs. Vivo think that is fine. Nokia has strong concern and want to discuss further.

Relationship between thresholds for LP-WUS monitoring and RRM relaxation/offloading (V002-V006)

R2-2507009 [V001-V006, C026, H053/054, E036] Discussion on RRC open issues for LP-WUS WUR vivo discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 3: (V002) The MR-based thresholds of the entry condition for R19 RRM relaxation should be lower than or equal to the thresholds of the entry condition for LP-WUS monitoring.*

*Proposal 4: (V003) The LR-based thresholds of the entry condition for R19 RRM relaxation should be lower than or equal to the thresholds of the entry condition for LP-WUS monitoring.*

*Proposal 5: (V004) The MR-based thresholds of the entry condition for serving cell RRM offloading should be higher than or equal to the thresholds of the entry condition for LP-WUS monitoring.*

*Proposal 6: (V005) The LR-based thresholds of the entry condition for serving cell RRM offloading should be higher than or equal to the thresholds of the entry condition for LP-WUS monitoring.*

*Proposal 7: (V006) The LR-based thresholds of the exit condition for serving cell RRM offloading should be higher than or equal to the thresholds of the exit condition for LP-WUS monitoring.*

R2-2507082 Remaining issues on LP-WUS paging monitoring and proposed TP to 3331,304 Xiaomi Communications, Huawei, HiSilicon, ZTE Corporation, Sanechips, Qualcomm Incorporated, Ericsson, Apple, Lenovo discussion

* Noted

*Proposal 1 The UE is allowed to monitor LP-WUS when the UE is in either Rel-19 RRM offload state or in Rel-19 RRM relaxation state. No extra entry/exit condition for LP-WUS monitoring is needed.*

R2-2507236 Discussion about LP-WUS RILs H050, E043, C026, V001, Z052 and V002 ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 4 [V002, V003, V004, V005] Merging LP-WUS monitoring thresholds into Offloading/Relaxation condition, e.g., UE starts the LP-WUS monitoring either in Offloading or Relaxation scenarios, there are no separate thresholds for LP-WUS monitoring.*

Discussions

- InterDigital think if we merge these conditions there might be R1 impact. Vivo think there is no impact.

- Nokia think we have discussed this a lot, and think there may be R4 impact, which is too late to have. OPPO share this view. Vivo think there is no further impact to R4 either.

Discussion in the CB on Xiaomi P1

- Multiple companies cannot accept Xiaomi P1 after some offline discussions.

Discussion in the CB on vivo P5/6/7

- InterDigital think we do not need this, since they are up to NW implementation. OPPO, LG E agree with this view. Nokia think nothing is broken w/o these proposals.

- Ericsson these are useless, and think we should only specify as Xiaomi P1 proposed.

**The following are the general understanding in R2 except for two companies (such understanding dose not require specification change):**

* The MR-based thresholds of the entry condition for serving cell RRM offloading should be higher than or equal to the thresholds of the entry condition for LP-WUS monitoring.
* The LR-based thresholds of the entry condition for serving cell RRM offloading should be higher than or equal to the thresholds of the entry condition for LP-WUS monitoring.
* The LR-based thresholds of the exit condition for serving cell RRM offloading should be higher than or equal to the thresholds of the exit condition for LP-WUS monitoring.

RAN2 impacts for Type 1 and Type 2 LR (H053, H054, E036)

R2-2507331 [H050][H053][H054][H055] Discussion on LP-WUS RILs Huawei, HiSilicon discussion Rel-19 Late

* Noted

*Proposal 3: RAN2 to create the separate sets of entry/exit thresholds for both LR types defined by RAN4.*

R2-2507626 LP-WUS issues (E035, E036, E037, E043, 38304-2, C026) Ericsson discussion Rel-19 NR\_LPWUS-Core Late

* Noted

*Proposal 4 Introduce a flag in SIB to prohibit Type 2 WUR to use LP-WUS in the cell e.g. when LP-WUS cannot be configured with sufficient guard band for type 2 WUR.*

Discussions

Need to create the separate sets of entry/exit thresholds for both LR types

- Xiaomi think R4 has not defined different RRM requirements, so not sure if separate sets of thresholds are useful.

- Apple think type 1 or 2 has no impact to R2, and think we do not need to discuss here. CATT agree, and think NW implementation will handle the configurations properly. Vivo also agree, and think the different noise figure of both types only impact the test case. InterDigital also agree, and think it introduces great spec impact.

- Qualcomm support Huawei proposal.

- Nokia think different RF accuracy have been defined by RAN4, so think Huawei proposal is good.

- OPPO have concern since we introduce too many different threshold, so want to ask R4 whether this proposal is needed.

- HW think the coverage performance of the two types are different.

- Ericsson think w/o separate thresholds, NW will have to configure as per the worse case scenario. Nokia agree. Vivo think this is up to NW implementation.

- vivo think R4 does not consider separate capabilities for type 1 and type 2.

- Huawei, QC think we can send LS to R4 to ask whether there is issue. Apple do not want to send a LS and think if there is issue R4 should let us know.

Need to introduce flag in SIB to prohibit type 2 WUR

- Qualcomm, Huawei think this restrict LPWUS usage.

- Nokia think if we do not have separate thresholds for both types then we need this.

- Ericsson think R4 didn't have time for sufficient discussions. Vivo think more discussions will be had in R4.

* H053, H054, E036 are rejected.

TTT for RRM relaxation entry (E035)

R2-2507626 LP-WUS issues (E035, E036, E037, E043, 38304-2, C026) Ericsson discussion Rel-19 NR\_LPWUS-Core Late

* Noted

*Proposal 10 NW can configure a TimeToTrigger (TTT) with the RRM relaxation entry condition.*

Discussion on the need of TTT

- InterDigital support the proposals, and want to also have a TTT for the exit condition.

- NEC think the intention is fine but wonders whether R4 also have similar mechanism. Xiaomi agree. Ericsson and Nokia do not think the R4 timer is for the same purpose.

- CATT think this is small optimization in this late stage.

- Xiaomi think this is not needed.

- Nokia, Qualcomm support the proposal.

- Huawei think when R4 defined the measurement requirements, they assume UE will anyway take multiple samples to get the results, so to some extend the intention is already fulfilled.

- vivo do not think we need to postpone. OPPO do not see need to this new timer.

* E035 is rejected.

R2-2506863 [E009][H050][V001][C031][H055]Discussion on RRC open issues CATT discussion Rel-19 NR\_LPWUS-Core

R2-2506864 [C026] Co-existence of LP-WUS with paging adaptation CATT discussion Rel-19 NR\_LPWUS-Core

R2-2506953 Discussion on LP-WUS RRC remaining issue NEC discussion Rel-19 NR\_LPWUS-Core

R2-2507009 [V001-V006, C026, H053/054, E036] Discussion on RRC open issues for LP-WUS WUR vivo discussion Rel-19 NR\_LPWUS-Core

R2-2507041 Discussion on [RIL] O701 Whether UE can report an empty preference time offset OPPO discussion Rel-19 NR\_LPWUS-Core

R2-2507082 Remaining issues on LP-WUS paging monitoring and proposed TP to 3331,304 Xiaomi Communications, Huawei, HiSilicon, ZTE Corporation, Sanechips, Qualcomm Incorporated, Ericsson, Apple, Lenovo discussion

R2-2507155 Discussion on open issues 38304-1 and 38304-3 for R19 LP-WUS Huawei, HiSilicon discussion Rel-19

R2-2507236 Discussion about LP-WUS RILs H050, E043, C026, V001, Z052 and V002 ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

R2-2507331 [H050][H053][H054][H055] Discussion on LP-WUS RILs Huawei, HiSilicon discussion Rel-19 Late

R2-2507344 Discussion about LP-WUS RILs E034, E035, E037, E043, V002, H050, H053, H054 Nokia discussion Rel-19 NR\_LPWUS-Core

R2-2507350 Discussion on RIL in LP-WUS RRC Qualcomm Incorporated discussion NR\_LPWUS-Core

R2-2507504 RRC issues on LP-WUS InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core

R2-2507626 LP-WUS issues (E035, E036, E037, E043, 38304-2, C026) Ericsson discussion Rel-19 NR\_LPWUS-Core Late

### 8.4.3 MAC issues

Remaining MAC issues

On P1 in R2-2507104 (Proposal 1: Revisit the UE operation in LP-WUS collision for Option 1-2, which should be based on critical issues in the current RAN2 agreements. (based on contribution))

R2-2507627 LP-WUS MAC issue (Eri-001 and Proposal 1 in #213) Ericsson discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 3 The NW can configure the number of consecutive LP-WUS monitoring occasions the UE is allowed to miss before it needs to start the lpwus-PDCCH-MonitoringTimer.*

R2-2507105 Remaining issues of LP-WUS in RRC\_CONNECTED Apple discussion Rel-19

* Noted

*Proposal 1: Capture the configuration restriction that the LP-WUS cycle is shorter than long DRX cycle for Option 1-2.*

R2-2507530 LP-WUS MAC Issues ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1(Eri-001): RAN2 Confirms that UE can always be reachable, whether it monitors LP-WUS or monitors PDCCH directly.*

R2-2506865 Discussion on MAC open issues CATT discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1: No enhancement is needed for handling on lpwus-PDCCH-MonitoringTimer in LP-WUS collision cases.*

Discussion

- Nokia have sympathy to Ericsson proposal, think that solve the issue that NW cannot reach the UE in the time period.

- Xiaomi share the same view as CATT and think it is optimization. Xiaomi think NW already can have good control of the UE monitoring, e.g., based on the measurements. ZTE, OPPO agree.

- ZTE think we already discussed and think NW knows such collision.

- LG E think the issue should be addressed and agree with Ericsson.

- NEC think we can consider Apple proposals as a possible compromise.

On P6 in R2-2507104 (Proposal 6: Further discuss the necessity to explicitly describe “option1-1/1-2” based on 38.300 description. (based on contribution))

R2-2507105 Remaining issues of LP-WUS in RRC\_CONNECTED Apple discussion Rel-19

* Noted

*Proposal 3: Capture the term of Option 1-1 and Option 1-2 in TS 38.300.*

R2-2507308 LP-WUS options description InterDigital discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal: The usage of LP-WUS Option 1-1 and Option 1-2 naming convention is not applied for TS 38.300 nor TS 38.321.*

Discussions

- vivo think in RRC we mention Options 1-1/1-2, but they need to refer to some place. Vivo think these terms are not in R1 spec either. Vivo think if Option 1 and 2 are not the best wording we an consider further refinement.

- Ericsson think it would be good if we only use these terms in RRC but in a self explainary way.

R2-2507174 MAC open issues Nokia, Nokia Shanghai Bell discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 3: RAN2 confirms that the MR does not need to wake up for an available CG or SR occasions if there is no actual uplink transmission on that CG/SR occasion.*

Discussion

- Apple, Xiaomi and Huawei think this is not essential.

- Ericsson wonder how frequent is the issue happening.

- QC think since UE do not operate in MR and LR at the same time, so this issue might not exist.

- LG E think there is a confliction btw MR and LR, and we should solve.

* RAN2 understand that uplink transmission should not be impacted by LP-WUS operation.

R2-2506865 Discussion on MAC open issues CATT discussion Rel-19 NR\_LPWUS-Core

R2-2506923 Remaining MAC open issues for LP-WUS Lenovo discussion Rel-19

R2-2506954 Discussion on LP-WUS MAC remaining issue NEC discussion Rel-19 NR\_LPWUS-Core

R2-2506981 Discussing on remaining MAC open issues Xiaomi discussion Rel-19 NR\_LPWUS-Core

R2-2507010 Discussion on MAC open issues for LP-WUS WUR vivo discussion Rel-19 NR\_LPWUS-Core

R2-2507042 Discussion on the remaining issue on LP-WUS in RRC\_CONNECTED OPPO discussion Rel-19 NR\_LPWUS-Core

R2-2507105 Remaining issues of LP-WUS in RRC\_CONNECTED Apple discussion Rel-19

R2-2507174 MAC open issues Nokia, Nokia Shanghai Bell discussion Rel-19 NR\_LPWUS-Core

R2-2507308 LP-WUS options description InterDigital discussion Rel-19 NR\_LPWUS-Core

R2-2507351 Remaining issues in LP-WUS MAC Qualcomm Incorporated discussion NR\_LPWUS-Core

R2-2507530 LP-WUS MAC Issues ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

R2-2507627 LP-WUS MAC issue (Eri-001 and Proposal 1 in #213) Ericsson discussion Rel-19 NR\_LPWUS-Core

### 8.4.4 Other issues

Issues related to IDLE/INACTIVE, Changes to Stage 2, UE capabilities, and other remaining issues if not covered by the previous agenda items

Low mobility criterion related

R2-2507011 Discussion on other open issues for LP-WUS WUR vivo discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1: (38304-1) “low mobility” criterion based on LR measurements is not needed for LP-WUS.*

*Proposal 2: (38304-3) There is no specification impact for R16 low mobility criterion when UE exits fully offloading.*

R2-2507505 Open issues on LP-WUS InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1: [38304-1] Support to evaluate low mobility criterion with LR measurements.*

*Proposal 2: [38304-3] Do not consider the specification impact on low-mobility criteria when a UE exits measurement offloading.*

* Confirm there is no specification impact for R16 low mobility criterion when UE exits fully offloading.

Discussion on “low mobility” criterion based on LR measurements

- Ericsson think this is essential issue and think we should address. Ericsson think we should have the means to configure the UE not using LPWUS, to avoid the issue of not having the measurement for a long time. Nokia also think this is critical and support the proposal from InterDigital.

- QC support vivo proposal. QC think in the RRM meas relaxation mode NW can have the measurements.

- OPPO see some benefit to introduce low mob criteria.

- ZTE support the proposal from InterDigital. ZTE think it may be a comprise if we only use MR results to evaluate low mob for the entry condition.

Chair: we will discuss again in the next meeting. Joint proposal is greatly encouraged.

38.300

R2-2507639 Miscellaneous corrections for LP-WUS Ericsson CR Rel-19 38.300 19.0.0 1046 - F NR\_LPWUS-Core Revised

=> Revised in R2-2507640

R2-2507640 Miscellaneous corrections for LP-WUS Ericsson CR Rel-19 38.300 19.0.0 1046 1 F NR\_LPWUS-Core R2-2507639

* Will be updated in the post meeting email discussion

Discussions

- Nokia point out that with the addition then the old sentence ‘LP-WUS is monitored outside active-time’ is not needed.

* [Post131bis][210][LPWUS] CR for TS 38.300 (Ericsson)

Intended outcome: Update the CR for endorsement

Deadline: Short

37.340

R2-2507369 Open issue of LP-WUS in TS37.340 ZTE Corporation, Sanechips report Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1: For MR-DC, UE can be configured to report MCG specific UE assistance information if the MN is a gNB and/or SCG specific UE assistance information if the SN is a gNB, if it has preferred time offset for PDCCH monitoring after LP-WUS monitoring.*

*Proposal 2: UE can report preferred time offset for PDCCH monitoring after LP-WUS monitoring for MCG and/or SCG independently for NR-DC.*

Discussion

- Qualcomm wonder how the NW use this information if it is reported to the SN. QC think such report is per UE not per CG.

- Xiaomi think this is fine, since this is similar as we did for DCP. Xiaomi wonder whether the values can be different for MCG and SCG. ZTE think it can and it is the intention P2.

* For MR-DC, UE can be configured to report MCG specific UE assistance information if the MN is a gNB and/or SCG specific UE assistance information if the SN is a gNB, if it has preferred time offset for PDCCH monitoring after LP-WUS monitoring.
* UE can report preferred time offset for PDCCH monitoring after LP-WUS monitoring for MCG and/or SCG independently for NR-DC.

R2-2507370 Correction on LP-WUS in TS 37.340 ZTE Corporation, Sanechips, Xiaomi CR Rel-19 37.340 19.0.0 0424 - F NR\_LPWUS-Core

* Endorsed

UE capability

R2-2507156 List of open issues for Rel-19 LP-WUS UE capabilities Huawei, HiSilicon (Rapporteur) discussion Rel-19

* Noted

R2-2506965 [LPWUS-Cap-OI-1] Discussion on open issue for LP-WUS UE capabilities Huawei, HiSilicon discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal: The UE capabilities for LP-WUS operation in IDLE/INACTIVE should also be added outside the Rel-19 paging container in UE capability information message. Which contents to be added can be discussed:*

*Option 1: only indicating the supported band list for LP-WUS regardless of the receiver type and other capabilities;*

*Option 2: indicating the supported band list for LP-WUS and the receiver type.*

R2-2507531 LP-WUS Other Issues ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

* Noted

*Proposal 1 (LPWUS-Cap-OI-1): RAN2 confirms that gNB can decode Rel-19 paging container (i.e., UE-RadioPagingInfo-r19) although it is defined using OCTET STRING. No further enhancement is necessary for the LP-WUS capability report.*

Discussion

- ZTE think it is possible for the NW to decode. HW think even though it is possible but it unnecessarily complicates NW implementation.

- Ericsson support Huawei proposal, because it give a clean structure of the signalling.

- Xiaomi think this topic should be discussed in the main session and think it is not limited to LPWUS.

- vivo think it is useful since at least some NW vendor will not decode the info in the container.

* The UE capabilities for LP-WUS operation in IDLE/INACTIVE should also be added outside the Rel-19 paging container in UE capability information message. Detailed signalling can be further discussed.

R2-2507253 Correction to R19 LP-WUS UE Capabilities Huawei, HiSilicon draftCR Rel-19 38.306 19.0.0 NR\_LPWUS-Core

* Endorsed.
* [Post131bis][211][LPWUS] CR for TS 38.306 (Huawei)

Intended outcome: Update the CR for endorsement

Deadline: Short

R2-2506965 [LPWUS-Cap-OI-1] Discussion on open issue for LP-WUS UE capabilities Huawei, HiSilicon discussion Rel-19 NR\_LPWUS-Core

R2-2507011 Discussion on other open issues for LP-WUS WUR vivo discussion Rel-19 NR\_LPWUS-Core

R2-2507043 Discussion on the remaining issues on RRM measurement OPPO discussion Rel-19 NR\_LPWUS-Core

R2-2507083 Remaining issues on RRM relaxation and proposed TP to TS 38.304 Xiaomi Communications discussion

R2-2507253 Correction to R19 LP-WUS UE Capabilities Huawei, HiSilicon draftCR Rel-19 38.306 19.0.0 NR\_LPWUS-Core

R2-2507352 Paging monitoring in LP-WUS CONNECTED state Qualcomm Incorporated discussion NR\_LPWUS-Core

R2-2507505 Open issues on LP-WUS InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core

R2-2507531 LP-WUS Other Issues ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

R2-2507618 Discussion on open issues in 38.304 for LP-WUS Nokia discussion Rel-19 NR\_LPWUS-Core

R2-2507628 LP-WUS critical issues (E008, 38304-1 and -3) Ericsson discussion Rel-19 NR\_LPWUS-Core Late

## 8.11 Evolution of NR duplex operation: Sub-band full duplex (SBFD)

(NR\_duplex\_evo-Core; leading WG: RAN1; REL-19; WID: RP-251874)

Time budget: 0 TU

Tdoc Limitation: 2 tdocs

### 8.11.1 Organizational

Incoming LS, Rapporteur input, etc..

LSin

R2-2506718 Reply LS on CSI-RS based CFRA using SBFD RO (R1-2506556; contact: ZTE) RAN1 LS in Rel-19 NR\_duplex\_evo-Core To:RAN2 Cc:RAN4

* Noted

38.321

R2-2507158 Summary of Rel-19 SBFD MAC open issue discussions for maintenance Samsung discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*Proposed WF for MAC-1:*

*Following the majority view, no correction will be considered for MAC-1 in Rapp CR. Companies that deem further discussion necessary, can submit tdoc contribution for MAC-1.*

Discussion

- Ericsson think the condition is not needed since it is already clear in stage 2

* No correction will be considered for MAC-1 in the MAC CR.

R2-2507080 Correction on MAC spec for R19 SBFD Samsung CR Rel-19 38.321 19.0.0 2126 - F NR\_duplex\_evo-Core

Discussion

- Xiaomi think the ‘RO’ in the OCT 4 of Enhanced LTM Cell Switch Command MAC CE should be moved to the other type since the current byte is optional and it may not exist. Samsung think this comment is valid.

* RO is placed next to the NCC field. CR will be updated accordingly (will be handled via post meeting email).
* [Post131bis][212][SBFD] CR for TS 38.321 (Samsung)

Intended outcome: Update the CR for endorsement

Deadline: Short

R2-2506820 Open issues in TS 38.300 on Rel-19 Evolution of NR duplex operation (SBFD) CATT discussion Rel-19 NR\_duplex\_evo-Core

=> Moved to 8.11.3

### 8.11.2 MAC issues

Remaing MAC issues

MAC-2: How to clarify "the preambleReceivedTargetPower used in Msg3 transmission power derivation is that configured for legacy RO, in the case that Msg3 is transmitted in non-SBFD symbols and SBFD RACH config option 2 is configured."

R2-2507255 Discussion on the remaining MAC open issues Samsung discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*[MAC-2] Proposal 1: RAN2 to prioritize Options 3 and 4, over Options 1 and 2, to minimize the risk of further mis-interpretation, where*

*- Option 1: "indicate the preambleReceivedTargetPower included in the rach-ConfigCommon or the rach-ConfigCommon-r17".*

*- Option 2: "indicate the preambleReceivedTargetPower included in the rach-ConfigCommon".*

*- Option 3: "indicate the preambleReceivedTargetPower not included in the sbfd-RACH-DualConfig".*

*- Option 4: "indicate the preambleReceivedTargetPower configured for the first PRACH occasions".*

R2-2506822 Remaining Issues on Random Access CATT discussion Rel-19

* Noted

*[MAC-2] Proposal 1: Positive statement is slightly preferred, that is to clarify that for RACH configuration option 2, if Msg3 PUSCH transmission is performed in non-SBFD symbols, preambleReceivedTargetPower included in rach-ConfigCommon can be used.*

R2-2507280 Remaining MAC issues on SBFD LG Electronics Inc. discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*Proposal 1. [MAC-2] Use the format of ‘not in yyy’ to specify that preambleReceivedTargetPower configured for non-SBFD RO is used if Msg3 PUSCH is transmitted in non-SBFD symbols*

R2-2507264 Remaining issue of SBFD Qualcomm Incorporated discussion NR\_duplex\_evo-Core

* Noted

*Proposal 1: For the case that Msg3 is transmitted in non-SBFD symbols and SBFD RACH config option 2 is configured, it is to clarify the preambleReceivedTargetPower used is the one included in the RACH-ConfigCommon.*

* If Msg3 PUSCH transmission is performed in non-SBFD symbols, indicate the preambleReceivedTargetPower configured for the first PRACH occasions".

MAC-3: Whether, and (if support) how, to support the compensation for the difference in preamble received target power between SBFD RO and legacy RO (in addition to the compensation for the power ramping difference that is already supported), for ensuring preamble transmit power continuity, during RO type switching.

R2-2507517 Discussion on SBFD MAC open issues Xiaomi discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*Proposal 2: [MAC-3] During RO type switching, there is no need to compensate the difference in preamble received target power between SBFD RO and legacy RO. No specification change is needed.*

R2-2507266 MAC Issues - SBFD Nokia discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*Proposal 1: To support the compensation for the difference in preamble received target power between SBFD RO and legacy RO (in addition to the compensation for the power ramping difference that is already supported), for ensuring preamble transmit power continuity, during RO type switching.*

Discussion

- Charter support Nokia proposal since there is power difference in different ROs.

- ZTE do not think the power difference is large and think UE can adjust anyway.

- Samsung think the difference can be addressed by proper NW configuration, so no need to have compensation. Vivo agree this view. CATT and Huawei think R1 already discussed this issue, and think this is out of R2 scope. CATT, InterDigital, and vivo support Xiaomi proposal.

- Apple think Nokia proposal is useful, and think for 2step RACH and 4step RACH the coverage of msg3 is similar so no there wasn’t pathloss difference, and think the case of SBFD RO is different.

- Huawei think no compensation is acceptable in R1.

- Nokia think R2 can discuss this issue. Ericsson agree with this view and think Nokia proposal make sense.

- Nokia think this needed since it give NW more flexibility in configuration. Nokia think there is power difference also due to the fact that some of the gNB panels are used for UL direction.

- OPPO think it is difficult to estimate the exact difference, and do not think R1 has clear view.

- WI Rapp suggest to discuss R1 if there is real issue about this. Samsung, CATT agree.

R2-2507003 Discussion on residual issues for MAC spec Huawei, HiSilicon discussion Rel-19 NR\_duplex\_evo-Core

* Noted
* Postponed

*Proposal for MAC-x: Agree the TP of bypassing the immediate Msg1 repetition number fallback when the UE performs RO type fallback.*

Discussion

- ZTE agree with the issue but want to refine the changes.

- Samsung think this could be solved by NW configuration. LG E also think this not critical.

R2-2506822 Remaining Issues on Random Access CATT discussion Rel-19

R2-2506971 Discussion on MAC-2 and MAC-3 for SBFD ZTE Corporation discussion Rel-19 NR\_duplex\_evo-Core

R2-2507003 Discussion on residual issues for MAC spec Huawei, HiSilicon discussion Rel-19 NR\_duplex\_evo-Core

R2-2507255 Discussion on the remaining MAC open issues Samsung discussion Rel-19 NR\_duplex\_evo-Core

R2-2507264 Remaining issue of SBFD Qualcomm Incorporated discussion NR\_duplex\_evo-Core

R2-2507266 MAC Issues - SBFD Nokia discussion Rel-19 NR\_duplex\_evo-Core

R2-2507280 Remaining MAC issues on SBFD LG Electronics Inc. discussion Rel-19 NR\_duplex\_evo-Core

R2-2507363 MAC remaining issues Ericsson discussion Rel-19 NR\_duplex\_evo-Core

R2-2507517 Discussion on SBFD MAC open issues Xiaomi discussion Rel-19 NR\_duplex\_evo-Core

R2-2507576 Discussion on UE transmit power continuity during RO type switching vivo discussion Rel-19 NR\_duplex\_evo-Core

### 8.11.3 Other aspects

Issues related to RILs, other remaing RRC issues, Changes to Stage 2, UE capabilities, and other remaining issues if not covered by the previous agedam items

38.331

R2-2507000 WI SBFD ASN.1 Review file Huawei, HiSilicon (Rapporteur) discussion Rel-19 NR\_duplex\_evo-Core

* Noted

R2-2507001 WI SBFD ASN.1 Comments file Huawei, HiSilicon (Rapporteur) discussion Rel-19 NR\_duplex\_evo-Core

* Noted

R2-2506999 Corrections to WI SBFD Huawei, HiSilicon (Rapporteur) CR Rel-19 38.331 19.0.0 5499 - F NR\_duplex\_evo-Core

* Will be updated using post meeting email discussion.
* [Post131bis][213][SBFD] CR for TS 38.331 (Huawei)

Intended outcome: Update the CR for endorsement

Deadline: Short

C100, C104, L701

R2-2506972 Discussion on RIL [C100][C104][L701] ZTE Corporation discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*Proposal 1: For RIL C100, in BeamfailureRecoveryConfig, support to add ‘or of the fallback CBRA’ in the field description of ra-OccasionType, instead of deleting ‘of CFRA’.*

*Proposal 2: For RIL C104, move the ra-OccasionType-r19 to be under CFRA field in RACH-ConfigDedicated, and to add ‘or of the fallback CBRA’ in the field description.*

*Proposal 3: For RIL L701, there is no need to restrict that rach-ConfigCommon and sbfd-RACH-DualConfig with same FeatureCombination should be provided in the same additionalRACH-Config.*

R2-2507281 [L701][C100][C104] RIL issues on SBFD LG Electronics Inc. discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*Proposal 1. [L701] Configure rach-ConfigCommon and sbfd-RACH-DualConfig in the same additionalRACH-Config IE, if the both rach-ConfigCommon and sbfd-RACH-DualConfig are configured for a specific FeatureCombination.*

*Proposal 3. [C100][C104] Clarify that ra-OccasionType in BeamFailureRecoveryConfig and RACH-ConfigDedicated IE indicates the second PRACH occasions for CFRA or for fallback case from CFRA to CBRA to be used by a SBFD aware UE.*

* For RIL C100, in BeamfailureRecoveryConfig, support to add ‘or of the fallback CBRA’ in the field description of ra-OccasionType, instead of deleting ‘of CFRA’.
* For RIL C104, move the ra-OccasionType-r19 to be under CFRA field in RACH-ConfigDedicated, and to add ‘or of the fallback CBRA’ in the field description.

P3 in R2-2507281

- Ericsson, Nokia agree with ZTE proposal.

- Samsung, CATT, Xiaomi, Qualcomm, Apple think LG E proposal is ok.

* If both rach-ConfigCommon and sbfd-RACH-DualConfig are configured for the same FeatureCombination, rach-ConfigCommon and sbfd-RACH-DualConfig are configured in the same additionalRACH-Config IE.

38.300

R2-2506820 Open issues in TS 38.300 on Rel-19 Evolution of NR duplex operation (SBFD) CATT discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*Proposal 1: There is one open issue in TS 38.300: whether SBFD with CA operation is required in clause X.1 General.*

*Proposal 2: Add more cases of RO type selection to TS 38.300: 1) CFRA triggered by dedicated RRC signalling, 2) CBRA RO selection for initial PRACH transmissions. Take the CR in R2-2506823 as baseline.*

R2-2506823 Introduction of Rel-19 Evolution of NR duplex operation (SBFD) CATT CR Rel-19 38.300 18.6.0 1008 2 F NR\_duplex\_evo-Core R2-2506604

* Will be updated using post meeting email discussion, can take into account proposals and TP in R2-2507002 and R2-2507364.
* [Post131bis][214][SBFD] CR for TS 38.300 (CATT)

Intended outcome: Update the CR for endorsement

Deadline: Short

R2-2507002 Discussion on issues for Stage-2 spec Huawei, HiSilicon discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*Proposal 1: No need to add description on CA for stage-2 spec.*

R2-2507364 Remaining issue for Stage 2 spec Ericsson discussion Rel-19 NR\_duplex\_evo-Core

* Noted

R2-2507508 SBFD with CA for stage-2 spec InterDigital, Inc. discussion Rel-19 NR\_duplex\_evo-Core

* Noted

*Proposal 1: Support SBFD operation with CA scenario for stage-2 specification.*

*Proposal 2: Adopt the changes to stage-2 38.300 specification provided in the appendix.*

P1in R2-2507508

- Qualcomm do not think we should discuss this in R2, and think R1 can discuss whether to add it or not.

- Ericsson think it is good to capture system wise aspect in stage 2. Ericsson think we could provide some wording regarding CA+SBFD and then let R1 check. Qualcomm think this should be discussed in R1.

- ZTE explains that CA and SBFD are agreed by R1 and think there is no stage 3 impact to R2 spec. OPPO agree. ZTE support P1.

- CATT do not support to capture this, and think the proposed change i.e., ‘a carrier’ from InterDigital is not so clear. Qualcomm think more clarification from R1 may be useful, and think technically it is supported to configured SBFD on more than one carriers.

- InterDigital think R2 is responsible to stage 2.

- OPPO wonder if SBFD is configured for CA, is there any restriction that SBFD is only configured for one of the carriers. Samsung think there is such restriction. Huawei think there is some ambiguity.

- CATT think it is useful to send LS to R1. Huawei think we can ask R1 to provide the TP.

* Send LS to R1, ask R1 to provide TP regarding the combination of CA and SBFD.
* [AT131bis][206][SBFD] LS to R1 and R4 on SBFD and CA (InterDigital)

 Intended outcome: Approve the LS via email (to R1, cc R4) in R2-2507746.

 Deadline: before end of the Meeting

R2-2506972 Discussion on RIL [C100][C104][L701] ZTE Corporation discussion Rel-19 NR\_duplex\_evo-Core

R2-2507002 Discussion on issues for Stage-2 spec Huawei, HiSilicon discussion Rel-19 NR\_duplex\_evo-Core

R2-2507267 Other Aspects of SBFD Nokia discussion Rel-19 NR\_duplex\_evo-Core

R2-2507281 [L701][C100][C104] RIL issues on SBFD LG Electronics Inc. discussion Rel-19 NR\_duplex\_evo-Core

R2-2507364 Remaining issue for Stage 2 spec Ericsson discussion Rel-19 NR\_duplex\_evo-Core

R2-2507507 RRC issues on SBFD InterDigital, Inc. discussion Rel-19 NR\_duplex\_evo-Core

R2-2507508 SBFD with CA for stage-2 spec InterDigital, Inc. discussion Rel-19 NR\_duplex\_evo-Core

R2-2507518 Discussion on SBFD RRC open issues Xiaomi discussion Rel-19 NR\_duplex\_evo-Core

R2-2507577 Discussion on RRC Remaining issues for SBFD vivo discussion Rel-19 NR\_duplex\_evo-Core

## 8.12 NR MIMO Phase 5

(NR\_MIMO\_Ph5-Core; leading WG: RAN1; REL-19; WID: [RP-242394](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_105/Docs/RP-242394.zip))

Time budget: 0 TU

Tdoc Limitation: 2 tdocs

### 8.12.1 Organizational

LSs and rapporteur input, etc.

R2-2506738 LS on event triggered L1-RSRP reporting if eventDetectionTimeWindowLength-r19 is configured (R4-2512232; contact: Qualcomm) RAN4 LS in Rel-19 NR\_MIMO\_Ph5-Core To:RAN1 Cc:RAN2

* Noted

38.321

R2-2507497 Report of Rel-19 MIMO MAC open issues for maintenance Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted
* During FR2 UL gap, the UE performs PUCCH transmission for UE Initiated Report Indication (for both mode-A and mode-B) and transmission of CG Type 1 for mode-B UE-initiated CSI reporting. Consider the proposed TP as baseline.
* To determine DRX Active Time at symbol n, UE considers UE Initiated Report Indication sent for mode-A UE-initiated CSI reporting until 4 ms prior to symbol n when evaluating all DRX Active Time conditions. Adopted the proposed TP.
* The existing Aperiodic CSI Trigger State Subselection MAC CE is used for CSI trigger state subselection for UEI-CSI reporting. Adopted the proposed TP.
* for UEI reporting, MAC does not consider overlapping handling for 1) mode-A/B PUCCH resource overlapping with other resources and 2) mode-B PUSCH resource overlapping with other resources. No MAC impact.
* [Post131bis][215][MIMOevo] CR for TS 38.321 (Samsung)

Intended outcome: Update the CR for endorsement

Deadline: Short

38.331

R2-2507593 Review file for MIMO ASN.1 review Ericsson discussion Late

* Noted

R2-2507594 Comment file for MIMO ASN.1 review Ericsson discussion Late

* Noted

R2-2507592 Corrections for MIMO Phase 5 Ericsson CR Rel-19 38.331 19.0.0 5548 - F NR\_MIMO\_Ph5-Core Late

* Endorsed
* [Post131bis][216][MIMOevo] CR for TS 38.331 (Ericsson)

Intended outcome: Update the CR for endorsement

Deadline: Short

### 8.12.2 MAC issues

Remaining MAC issues

UE behavior for the different caes, a) the TAT for mode-B PUSCH is expired while the TAT for PUCCH is running, and b) if the TAT for mode-B PUCCH is expired while the TAT for PUSCH is running, clears the CG for UEI

R2-2506847 Discussion on remaining MAC issue China Telecom discussion NR\_MIMO\_Ph5-Core

* Noted

*Proposal 1[Issue-1]: Prefer Option-1, i.e., release the associated PUCCH. And it is OK with both TPs.*

R2-2507021 Discussion on MAC open issues for UEI BMR vivo discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 1 Upon STAG TAT expiry associated with a SCell configured with a UEI report configuration with Mode B, if the PUCCH resource of the UEI report configuration is configured on a PCell or PUCCH-SCell of a different TAG with a running TAT, the UE:*

*Option 2a: does not release the PUCCH resource. If a UEI beam report is triggered for the SCell, the UE transmits the PUCCH and does not transmit the PUSCH for the UEI beam report.*

*Option 2b: does not release the PUCCH resource. If a UEI beam report is triggered for the SCell, the UE does not transmit the PUCCH for the UEI beam report.*

R2-2507199 Remaining MAC issues in MIMO Ofinno discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 1 For mode-B UEI reporting, PUCCH and Type1 CG PUSCH can be associated with different TAGs. If the TAT (associated with a sTAG) for Type1 CG PUSCH is expired while the TAT for PUCCH is running, RAN2 to discuss and down-select one of the following options:*

*Option 1: UE releases the PUCCH. (Adopt the TP in the Appendix 1).*

*Option 2: UE does not release the PUCCH and not transmit the UEIRI on the PUCCH. (Adopt the TP in the Appendix 2).*

*Proposal 1 For mode-B UEI reporting, PUCCH and Type1 CG PUSCH can be associated with different TAGs. If the TAT (associated with a sTAG) for Type1 CG PUSCH is expired while the TAT for PUCCH is running, RAN2 to discuss and down-select one of the following options:*

*Option 1: UE releases the PUCCH. (Adopt the TP in the Appendix 1).*

*Option 2: UE does not release the PUCCH and not transmit the UEIRI on the PUCCH. (Adopt the TP in the Appendix 2).*

Discussions

P1

- Qualcomm think PUCCH is specifically configured for this feature so no need to keep the resource.

- ZTE think there is no need to release, and think there is no need to change the specification if we go with Option 2.

- Nokia, Ericsson, Asustek, Huawei prefer O1. Ericsson think we need to clarify the UE behavior in the spec.

- LG E support O2 and think O1 is just optimization. ZTE agree. LG E think the PUCCH resource could be shared btw HARQ ACK/NACK and UEIBM. Asustek not sure if such resource configuration is reasonable.

- OPPO think UE still transmit on PUCCH and think NW implementation can disable the transmission in PUCCH.

- Ofinno think we should just go with the O1 since it get majority’s support.

- ZTE think NW will reconfigure anyway because BM is important, so no need to require UE to release the PUCCH automatically. Ofinno think from UE perspective it is a waste to transmit in this case.

* For mode-B UEI reporting, PUCCH and Type1 CG PUSCH can be associated with different TAGs. If the TAT (associated with a sTAG) for PUCCH is expired while the TAT for Type1 CG PUSCH is running, the UE clears the Type1 CG PUSCH. (Adopt the TP in the Appendix 3 as baseline).

UEIRI on PUCCH if the BWP configured with mode-B PUSCH is deactivated

R2-2507154 [Issue-2] Discussion on MAC remaining issue for MIMO SHARP Corporation discussion NR\_MIMO\_Ph5-Core

* Noted

*Proposal 1: UE does not transmit a PUCCH for beam measurement report notification in Mode B if the UL BWP for the associated PUSCH is deactivated.*

R2-2507600 Consideration on the Remaining MAC Issues of UEIBM ZTE Corporation discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 2: If the BWP carrying the Mode-B CG PUSCH is deactivated, the UE shall not transmit the UEI Report Indication on PUCCH. RAN2 is to confirm whether this should be specified as a defined behavior or left to network implementation to avoid.*

Discussion

P2

- ZTE, CATT, Nokia think it is up to NW implementation.

- QC think this is an error case and think NW should ensure this does not happen.

- Ofinno think it is not reasonable to always require the BWP for UEIBM to be activated, because there may be need to schedule other transmission on other BWPs.

- Ericsson think we need to clarify the UE behavior in the spec.

* If the BWP/SCell carrying the Mode-B CG PUSCH is deactivated, the UE shall not transmit the UEI Report Indication on PUCCH.

TAT expired for any TCI state of multi-panel SDM for sDCImTRP 2TA

R2-2506941 Discussion on remaining MAC issues CATT discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 3 [Issue-5]: If UE is configured with sDCI mTRP two TA and UL multi-panel transmission with SDM mode, UE clears the CG resource if at least one TCI state indicated by the DCI for the CG resource is associated with the expired TAT.*

R2-2507199 Remaining MAC issues in MIMO Ofinno discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 4 When a serving cell is configured with multipanelSchemeSDM and with two TAGs, to avoid unsuccessfully decoding due to only partial PUSCH transmission/MIMO layer/TRP has valid TA, RAN2 to discuss and down-select one of the following options:*

*• Option 1: UE clears any CG/PUSCH for SP-CSI if any of the two activated TCI states for the CG/PUSCH for SP-CSI is associated with a TAG of an expired TAT. (Adopt the TP in the Appendix 5).*

*• Option 2: UE does not transmit any CG/PUSCH for SP-CSI if any of the two activated TCI states for the CG/PUSCH for SP-CSI is associated with a TAG of an expired TAT. (Adopt the TP in the Appendix 6).*

R2-2507498 MAC open issues Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 3: For multipanelSchemeSDM, UE clear the CG/PUSCH for SP-CSI if all of the activated TCI state(s) for the CG/PUSCH for SP-CSI is associated with the TAG(s) of the expired TAT(s). This is aligned with legacy behaviour; no change is needed for this.*

*Proposal 4: For multi-panel SDM scheme, NW should ensure to indicate in DCI both two TCI states with running TAT(s) for multipanelSchemeSDM, so that UE can use the indicated TCI states to transmits all MIMO layers of the TB. Discuss whether to specify that “UE does not transmit any uplink transmission via multi-panel SDM scheme if any TCI state to be applied for the multi-panel SDM transmission is associated to a TAG for which the TAT is expired.”*

Discussion

- ZTE think O1 in Ofinno P4 is preferable.

- Qualcomm not sure if this issue is real. And think if we need a solution then P1 is reasonable.

- Ofinno think it is not easy for NW to always ensure like proposed by Samsung P4.

- Samsung do not agree with O1 from Ofinno P4.

DRX active time for mode-A UEI reporting

R2-2506941 Discussion on remaining MAC issues CATT discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 4 [Issue-10]: For mode-A UEIBR, keep the current wording in the MAC spec that UE considers the DRX as active time while a PDCCH scheduling a mode-A UE-initiated CSI report on PUSCH has not been received after transmitting UE Initiated Report Indication on PUCCH.*

R2-2507265 MAC Open issues Nokia discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 2: If a PDCCH scheduling a mode-A UEI CSI report is not received after transmission of UEIRI, UE stays in the active state until the next PUCCH ressource for transmitting UE Initiated Report Indication. No MAC spec change.*

R2-2507209 Remaining issues on UEI beam reporting LG Electronics Inc. discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 3. For Mode-A, RAN2 introduce a new timer to handle Active time based on UEI reporting.*

*Proposal 4. For Mode-A, the new timer is started upon UEIRI transmission and is stopped upon expiry of the timer.*

Discussions

P3 in R2-2507209

- CATT think for legacy SR we do not have similar mechanism. LG E think these are different cases.

- Asusteck agree with P3.

- Ericsson wonders what is the new timer and how does it work.

P2 in R2-2507265

- Asusteck think this is fine but we need to change the MAC spec.

- CATT also ok with P2.

- Ericsson support as well.

- LG E wonders what is the UE behaviour on the next PUCCH resource. Nokia think UE will transmit based on the trigger, nothing new.

- LG E has concern if NW configured a very short PUCCH periodicity, the granularity could be very short (such as on the slot level), and in this case not sure how it works.

* [AT131bis][203][MIMOevo] Remaining MAC issues (Samsung)

 Intended outcome: Proposals in R2-2507734 for the remaining MAC issues.

 Deadline: before Friday CB

R2-2507734 [AT131bis][203][MIMOevo] Remaining MAC issues

* Noted

Proposal 1: For mode-B UEI reporting, PUCCH and Type1 CG PUSCH can be associated with different TAGs. If the TAT (associated with a sTAG) for Type1 CG PUSCH is expired while the TAT for PUCCH is running, and if the configured PUCCH resource id is only associated to this type-1 CG PUSCH, UE releases the PUCCH.

Discussion in CB

P1

- ZTE has concern for the case if this is the only PUCCH that UE gets, and if the resource is released then there is no way to report ACK/NACK. OPPO, Ofinno, Nokia, vivo think this is not typical case so this issue mentioned by ZTE is not so critical.

- ZTE want to check with R1. Vivo think we can just check internally so no need to send a LS.

- Question from HW: what is the meaning of ‘only associated to this type-1 CG PUSCH’

- Question from ZTE: how should UE decide whether a PUCCH is ONLY associated to type-1 CG PUSCH

?? Baseline, can confirm in the next meeting: For mode-B UEI reporting, PUCCH and Type1 CG PUSCH can be associated with different TAGs. If the TAT (associated with a sTAG) for Type1 CG PUSCH is expired while the TAT for PUCCH is running, and if the configured PUCCH resource id is only associated to this type-1 CG PUSCH (i.e., not associated with any other UCI), UE releases the PUCCH.

* (Update the agreement on Monday): For mode-B UEI reporting, PUCCH and Type1 CG PUSCH can be associated with different TAGs. If the TAT (associated with a sTAG) for PUCCH is expired while the TAT for Type1 CG PUSCH is running, and if the Type1 CG is only associated to this PUCCH for mode-B UEI reporting, the UE clears the Type1 CG PUSCH.
* When a serving cell is configured with multipanelSchemeSDM and with two TAGs, to avoid unsuccessfully decoding due to only partial PUSCH transmission/MIMO layer/TRP has valid TA, UE does not transmit any PUSCH if any TCI states used for multi-panel SDM is associated to an expired TAT. Specify this UE behavior in MAC.

Proposal 4: For DRX, after transmitting UEIRI on PUCCH, select one option:

Option 1 (5/10): UE stays in active time until receiving PDCCH scheduling. Keep the current MAC spec.

Option 2 (5/10): UE stays in active time until the next PUCCH resource occasion. Update MAC spec.

Discussion in CB

P4

- Nokia think O1 will extend the UE actively which is not needed, so prefer O2. Ofinno also support O2. Asustek think part of the reason is that coapneis have different views regarding how PUCCH is handled in this case, so perhaps we should check with R1 (internally if not sending a LS. )

Chair: P1/P4 can be discussed in the next meeting, companies are encouraged to check internally with R1 if needed.

R2-2506847 Discussion on remaining MAC issue China Telecom discussion NR\_MIMO\_Ph5-Core

R2-2506906 Discuss on MIMO MAC issues CMCC discussion Rel-19 NR\_MIMO\_Ph5-Core Withdrawn

R2-2506941 Discussion on remaining MAC issues CATT discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507021 Discussion on MAC open issues for UEI BMR vivo discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507154 [Issue-2] Discussion on MAC remaining issue for MIMO SHARP Corporation discussion NR\_MIMO\_Ph5-Core

R2-2507199 Remaining MAC issues in MIMO Ofinno discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507209 Remaining issues on UEI beam reporting LG Electronics Inc. discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507265 MAC Open issues Nokia discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507377 MAC issues for MIMO Huawei, HiSilicon discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507498 MAC open issues Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507539 Discussion on MIMO MAC open issues ASUSTeK, Ofinno, Ericsson discussion Rel-19 38.321 NR\_MIMO\_Ph5-Core

R2-2507600 Consideration on the Remaining MAC Issues of UEIBM ZTE Corporation discussion Rel-19 NR\_MIMO\_Ph5-Core

### 8.12.3Others

Issues related to RILs, other remaining RRC issues, Changes to Stage 2, and other issues if not covered by the previous agenda items

Coexistence of UL-only TRP and (C)-LTM (H403)

R2-2507376 RRC issues for MIMO Huawei, HiSilicon discussion Rel-19 NR\_MIMO\_Ph5-Core Late

* Noted

*Proposal 4: Confirm that, when the TA is already acquired, it is possible to perform an initial (RACH-less) uplink transmission to a cell configured with intra-cell asymmetric DL sTRP/UL mTRP using a pre-stored PL offset for the TCI state used.*

*Proposal 5: Leave it to the mobility enhancement session (whether) to specify the necessary signalling.*

R2-2506852 Clarification on the coexistence between LTM or CLTM and UL-only TRP OPPO discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*LTM*

*Proposal 1: For both Rel-18 LTM and Rel-19 LTM, the configuration (including pathloss offset) of the asymmetric DL sTRP/UL mTRP can be included in the LTM candidate configuration, without adding the pathloss offset in (enhanced) LTM Cell Switch Command MAC CE.*

*Proposal 2: The UL-only TRP is not used for the early RACH procedure of LTM. No extra specification change is needed.*

*C-LTM*

*Proposal 3: The gNB by implementation can include the configuration (including pathloss offset) of the asymmetric DL sTRP/UL mTRP in the candidate configuration of C-LTM. No extra specification change is needed.*

*Proposal 4: The UL-only TRP is not used for the early RACH procedure for C-LTM. No extra specification change is needed.*

R2-2507605 [Z408][K103][H400][H403][Z409]RIL Issues for MIMO ZTE Corporation discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 2: No need to include the PL offset in the LTM Cell Switch Command.*

*Proposal 3: RAN2 should first clarify the usage scenario for configuring the PL offset for the candidate cell, and subsequently determine whether and how to include it.*

R2-2507499 RIL S001 H403 Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 2: Not pursue H403, i.e., pathloss offset is not supported for LTM candidate TCI states.*

Discussion

- Qualcomm do not see it a valid case, because the PL offset is configured when there is no DL measurement from the UL only TRP. CATT agree.

- Ericsson and Qualcomm support Samsung proposal.

* H403 is not pursed.

On servCellIndex for mode-B CG (Z408, K103, H400)

R2-2507376 RRC issues for MIMO Huawei, HiSilicon discussion Rel-19 NR\_MIMO\_Ph5-Core Late

* Noted

Discussion

- HW clarifies their proposal is to ‘Update the description of the CSI-ReportConfig IE according to the TP in 2.1.’

* The changes proposed by P1 is generally agreeable, can refine the wording (e.g., details regarding mode A / mode B) in the post meeting email discussions.

R2-2507565 Discussion on remaining RRC issue China Telecom discussion

* Noted

*Proposal 1: servCellIndex-r19 in CSI-ReportConfig -> reportTransmissionMode-r19 -> pusch-ResourceOfModeB-19 can be optional field.*

Discussion

- Ofinno prefer to remove servCellIndex for mode-B CG, ZTE also agree. Nokia fine with removing but think it may be useful to inform R1 about the agreement.

- Asustek think we need some clarification in the description.

* Remove servCellIndex-r19 in modeB-r19 in CSI-ReportUE-IBR-r19.

R2-2507540 Discussion on RIL [K103] ASUSTeK discussion Rel-19 38.331 NR\_MIMO\_Ph5-Core

* Noted
* K103 is not pursued.

*Proposal 1: (RIL-K103) Use a single parameter ConfiguredGrantConfigIndexMAC to indicate Type-1 CG PUSCH resource for the PUSCH transmission in mode-B UE-initiated beam reporting.*

S001

R2-2507499 RIL S001 H403 Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 1: For S001, add in field description that cri-TypeI-SinglePanelRI-Restriction-r19 and cri-TypeI-SinglePanelN1-N2-CBSR-r19 are optionally present if codebookType is set to typeI-SinglePanel, cri-TypeII-RI-Restriction-r19 and cri-TypeII-N1-N2-CBSR-r19 are optionally present if codebookType is set to typeII-r16. They are not configured together with codebookType in codebookConfig-r19.*

* For S001, add in field description that cri-TypeI-SinglePanelRI-Restriction-r19 and cri-TypeI-SinglePanelN1-N2-CBSR-r19 are optionally present if codebookType is set to typeI-SinglePanel, cri-TypeII-RI-Restriction-r19 and cri-TypeII-N1-N2-CBSR-r19 are optionally present if codebookType is set to typeII-r16. They are not configured together with codebookType in codebookConfig-r19.

Z409

R2-2507605 [Z408][K103][H400][H403][Z409]RIL Issues for MIMO ZTE Corporation discussion Rel-19 NR\_MIMO\_Ph5-Core

* Noted

*Proposal 4: Send an LS to RAN1 to confirm whether there is a need to define additionalOneSlotOffsetDoppler-r19 as a list.*

N122, C252, C253

R2-2507549 Stage 2 and RRC aspects Nokia discussion Rel-19 NR\_MIMO\_Ph5-Core Late

* Noted

*Proposal 3: [N122] Generalize and use the same field description for pathlossOffset under TCI-State and TCI-UL-State IEs, clarifying that the field applies to TCI states of UL-only TRPs; use existing conditional presence tag “JointTCI” in TCI-State IE to distinguish the joint TCI state case.*

* Generalize and use the same field description for pathlossOffset under TCI-State and TCI-UL-State IEs, clarifying that the field applies to TCI states of UL-only TRPs; use existing conditional presence tag “JointTCI” in TCI-State IE to distinguish the joint TCI state case.

H401

R2-2507376 RRC issues for MIMO Huawei, HiSilicon discussion Rel-19 NR\_MIMO\_Ph5-Core Late

* Noted

*Proposal 3: Ask RAN1:*

*- whether RAN1 will capture the UE behaviour for the case where a report is triggered while there are no resources for UEIRI transmission or mode-B transmission in the active BWP;*

*- whether there is a particular reason why the resources for UEIRI transmission and for mode-B transmission on PUSCH are in a single BWP (unlike Rel-15 CSI reporting on PUCCH), which could make the above scenario difficult to avoid.*

Stage 2

R2-2507549 Stage 2 and RRC aspects Nokia discussion Rel-19 NR\_MIMO\_Ph5-Core Late

* Noted

*Proposal 1: Clarify the asymmetric TRP scenario in TS 38.300 according to the text proposal in Annex A.*

Discussions

- CMCC think UL TRP is used in WID, and also think there is the case when the TRP is sending SSB so no need to change to UL only TRP.

Discussions on CB

- CMCC explain that after some offline checking, perhaps we do not change the current spec. Nokia explain that these exiting descriptions are already after discussions in R1 and were compromise there already.

R2-2506852 Clarification on the coexistence between LTM or CLTM and UL-only TRP OPPO discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507376 RRC issues for MIMO Huawei, HiSilicon discussion Rel-19 NR\_MIMO\_Ph5-Core Late

R2-2507499 RIL S001 H403 Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507540 Discussion on RIL [K103] ASUSTeK discussion Rel-19 38.331 NR\_MIMO\_Ph5-Core

R2-2507549 Stage 2 and RRC aspects Nokia discussion Rel-19 NR\_MIMO\_Ph5-Core Late

R2-2507565 Discussion on remaining RRC issue China Telecom discussion

R2-2507605 [Z408][K103][H400][H403][Z409]RIL Issues for MIMO ZTE Corporation discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2507657 [K103][H402] Discussion on RIL related issues CATT discussion Rel-19 NR\_MIMO\_Ph5-Core

## 8.20 NR Others

Tdoc limit: 2

Specific items may be allocated to a breakout session for treatment.

Impacts from Other RAN WGs and TSGs that has no separate TU budget in RAN2. LS ins for Rel-19 specific WIs/SIs that has no RAN WI.

Additional tdocs on top of limit can be allowed for co-sourced contribution with 3 or more companies

### 8.20.1 RAN4

RRC Signaling for power domain enhancement

R2-2506730 LS on RRC signalling for power domain enhancement (R4-2511759; contact: Huawei) RAN4 LS in Rel-19 NR\_ENDC\_RF\_Ph4-Core To:RAN2

* Noted

CSSF enhancement

R2-2506736 Reply LS on CSSF optimization for NR RRM Phase 5 (R4-2512161; contact: Apple) RAN4 LS in Rel-19 NR\_RRM\_Ph5-Core To:RAN2

* Noted

Rx BSF optimization

R2-2506739 LS on Rx BSF optimization for NR RRM Phase 5 (R4-2512333; contact: CICT RAN4 LS in Rel-19 NR\_RRM\_Ph5-Core To:RAN2

* Noted

R2-2506788 Report of [Post131][225][NR\_Others] On Rx BSF optimization (CATT) CATT discussion Rel-19 NR\_RRM\_Ph5-Core

* Noted
* According to RAN4 LS, a new item for indicating UE preference to quit FBS is added in UAI.

P2

?? Prohibit timer is not used for indicating UE preference to quit FBS in UAI.

Discussion

P2

- Nokia think prohibit timer is useful. CATT explains that after UE report the UAI, NW can handle via proper configuration, so the prohibit timer is not so critical.

- Ericsson wonders whether P2 implies some restriction to NW configuration.

- Qualcomm think this does not mean UE needs to change its preference multiple times, i.e., it is like a one-time report.

- Huawei think we should allow UE to report either way, i.e., keep it in the FBS state or quitting it, and think we need the prohibit timer. Qualcomm think we should have a prohibit timer if this is the case.

- CATT indicate that in the R4 LS it is clear that they will not discuss the UE behaviour after reporting the UAI.

* [AT131bis][202][NR\_Others] On Rx BSF optimization (CATT)

Scope: Further discuss the UAI content, the need of the prohibit timer

 Intended outcome: Summary with proposals in R2-2507732.

 Deadline: before Friday CB

R2-2507732 Discussion on Rx BSF

* Noted

*On UAI design:*

*P1: whether FBS operation is preferred or not is indicated in UAI.*

*P2: prohibit timer is used, and the candidate timer length can be {s0, s0dot5, s1, s2, s3, s4, s5, s6, s7, s8, s9, s10, s20, s30}.*

*P3: send a LS to RAN4 on RAN2 agreement (if P1 is agreed).*

*On scenario restriction:*

*P4: RAN2 to discuss the following understanding:*

*Understanding 1: In case the FBS triggering condition is configured, UE only applies it when the scenario related conditions of applicability of requirements defined in 38.133 are met.*

*Understanding 2: NW only configures the FBS triggering condition when the scenario related conditions of applicability of requirements defined in 38.133 are met.*

*On scenario restriction:*

*P4: RAN2 to discuss the following understanding:*

*Understanding 1: In case the FBS triggering condition is configured, UE only applies it when the scenario related conditions of applicability of requirements defined in 38.133 are met.*

*Understanding 2: NW only configures the FBS triggering condition when the scenario related conditions of applicability of requirements defined in 38.133 are met.*

Discussions in CB

- Apple think understanding #2 is the usual way, and understanding #1 is complex. Vivo share this view.

- Qualcomm think the understanding #1 is ok, Qualcomm think this ‘consideration of applicability’ include RRC configured condition and the RSRP condition.

- Nokia think with understanding #2 is very difficult for NW to configure. Ericsson think we can capture that ‘it is up to network when to configure’. ZTE share this view, and think there are many same cases.

* Whether FBS operation is preferred or not is indicated in UAI.
* Prohibit timer is introduced, and the candidate timer length can be {s0, s0dot5, s1, s2, s3, s4, s5, s6, s7, s8, s9, s10, s20, s30}.
* In case the FBS triggering condition is configured, UE only applies it when the scenario related conditions of applicability of requirements defined in 38.133 are met. It is up to network when to configure the FBS triggering.
* Send a LS to RAN4 to inform RAN2 agreement
* [Post131bis][217][NR\_Others] LS to RAN4 (CATT)

Intended outcome: Approve the LS as per the agreements

Deadline: Short

* [Post131bis][218][NR\_Others] CR for TS 38.331 (CATT)

Intended outcome: Discuss and prepare the CR, for submission to the next meeting

Deadline: Long

R2-2506789 Introduction of Rx BSF optimization for NR RRM Ph5 CATT draftCR Rel-19 38.331 18.6.0 B NR\_RRM\_Ph5-Core

* Will be updated in the post meeting email discussion

R2-2507613 Fast Beam Sweeping Factor Nokia discussion Rel-19 NR\_RRM\_Ph5-Core Late

UE capability for 6Rx UE

R2-2506735 LS on Release Independence of 6Rx (R4-2511898; contact: T-Mobile) RAN4 LS in Rel-19 NR\_ENDC\_RF\_Ph4-Core To:RAN2 Cc:RAN1

* Noted

R2-2506987 [DRAFT] Reply LS on Release Independence of 6Rx Qualcomm Incorporated, T-Mobile LS out Rel-19 NR\_ENDC\_RF\_Ph4-Core To:RAN4 Cc:RAN1

* Noted

R2-2507171 Discussion on release independent of 6Rx vivo discussion Rel-19

* Noted
* Reply to RAN4, indicating that it is possible to specify the early implementation of the UE capability signalling on the support of maximum 6 DL MIMO layers for PDSCH. RAN2 assume that whether 6Rx supporting shall be early implemented should be decided by RAN4. Update the draft LS in R2-2507733.

Discussion in CB

- Qualcomm explain that the draft LS R2-2507733 was further updated in R2-2507742, which should be treated.

R2-2507742 [DRAFT] Reply LS on Release Independence of 6Rx

* Final LS is approved in R2-2507743.

UE capability for Low band CA

R2-2506733 LS on capability of NR\_LBCA\_Sw (R4-2511863; contact: Huawei) RAN4 LS in Rel-19 NR\_LBCA\_Sw To:RAN2

* Noted

R2-2506947 Discussion on UE capability of low band CA via switching Huawei, HiSilicon discussion Rel-19 NR\_LBCA\_Sw

* Noted

*Proposal 1: RAN2 to discuss the following two alternatives for low band switching capability reporting:*

*alternative 1: reuse existing BC list for CA to indicate low band switching with a new FeatureSetCombination*

*alternative 2: introduce a new BC list to indicate low band switching.*

*Proposal 2: Do not consider higher-order band combinations on low band switching capability reporting in Rel-19.*

Discussion

P2

- Apple think this is about two things, the UE capability and the NW configuration. Qualcomm think this statement is too generic. MediaTek share the understanding as P2 and think nothing preclude UE from reporting so.

R2-2507124 UE capability for LBCA via switching Apple discussion Rel-19 NR\_LBCA\_Sw

* Noted

*Proposal 1: RAN2 to select one from the following two alternatives to support LBCA\_Sw UE capability signaling.*

*- Alt-1: Introducing a separate band combination list for LBCA\_Sw (similar as UL Tx switching)*

*- Alt-2: Introducing a separate FeatureSetCombination for LBCA\_Sw (similar as DAPS)*

*Proposal 2: RAN2 to discuss about the applicable deployments of LBCA\_Sw and confirm if LBCA\_Sw applies to both CA for NR standalone and NR-DC.*

*Proposal 3: RAN2 to discuss about whether to introduce explicit filtering bit into UECapabilityEnquiry for LBCA via switching if Alt-1 (separate band combination list) is agreed.*

Discussion

P2

- Ericsson think we focus on CA for now and we can extend later if needed. Huawei share this view and think there is no clear requirement from NR DC in R4.

R2-2507601 Consideration on the LBCA Capability Signaling ZTE Corporation discussion Rel-19 NR\_LBCA\_Sw

* Noted

*Proposal 1: The LBCA capability can be signaled by introducing an LBCA-specific FeatureSetCombinationID.*

*Proposal 1a: The UE can indicate whether it supports the LBCA case by using an LBCA-specific FeatureSetCombinationID. There is no need to add other LBCA-specific parameters at this stage.*

R2-2507603 Backwards compatibility for low NR band carrier aggregation switching Ericsson discussion

* Noted

[*Proposal 1 Introduce an alternative* FeatureSetCombinationId *for a UE supporting low band carrier switching.*](#_Toc210373503)

* Introduce an alternative FeatureSetCombinationId for a UE supporting low band carrier switching.
* We will focus on NR standalone case for the LBCA capability signaling.

On capability for intra-band non-collocated EN-DC/NR-CA deployment

R2-2507606 Consideration on the Type 2 and Type 4 UE Capability Reporting ZTE Corporation discussion Rel-19 NonCol\_intraB\_ENDC\_NR\_CA\_Ph2-Core

* Noted

*Proposal 1: Allow the UE to report the super BC with type 4 capability (i.e. interBandMRDC-WithOverlapDL-Bands-r19), with the restriction that this capability is applicable only to the fallback BC with single CC on the NR side.*

*Proposal 2: Allow the UE to report the super BC with type 2 capability (i.e. requirementTypeIndication-r18), with the restriction that this capability is applicable only to the fallback BC with at most 2 CCs on the NR side.*

*Proposal 3: For a given super BC, if the UE does not support the corresponding type 2 capability, it shall not report the type 4 capability for that super BC.*

*Proposal 4: If the above 3 proposals are agreed in RAN2, send an LS to RAN4 for the information.*

Discussion

- Apple think R4 already agreed that type 2 is restricted to single CC case.

- Ericsson think if R4 already agree then maybe we do not need to do anything further.

* RAN2 assume that UE is allowed to report the super BC with type 2 and type 4 capability, with the restriction that this capability is applicable only to the fallback BC with single CC on the NR side for the EN-DC case and with two CCs for the CA case (as defined in the RAN4 spec).

*Chair: the other documents will be handled in other sessions.*

R2-2506742 LS on UE Capability for Rel.19 Ku band VSAT (R4-2512658; contact: Chunghwa Telecom, Sharp) RAN4 LS in Rel-19 NR\_NTN\_Ku\_bands To:RAN2

R2-2506933 Introduction of Ku band Huawei, HiSilicon CR Rel-19 38.331 19.0.0 5492 - B NR\_NTN\_Ku\_bands

R2-2506934 Introduction of Ku band Huawei, HiSilicon CR Rel-19 38.306 19.0.0 1356 - B NR\_NTN\_Ku\_bands

R2-2507193 UE Capability for Rel-19 Ku Band VSAT (R4 60-1/60-2) Sharp, CHTTL, SES discussion Rel-19 NR\_NTN\_Ku\_bands

R2-2507194 Draft 38.306 CR for Rel-19 NTN Ku Band Sharp, CHTTL, SES draftCR Rel-19 38.306 19.0.0 NR\_NTN\_Ku\_bands

R2-2507195 Draft 38.331 UE capability CR for Rel-19 NTN Ku Band Sharp, CHTTL, SES draftCR Rel-19 38.331 19.0.0 NR\_NTN\_Ku\_bands

R2-2507383 The introduction of NTN VSAT FR1 capabilities in 38.306 Nokia, Nokia Shanghai Bell draftCR Rel-19 38.306 19.0.0 NR\_NTN\_Ku\_bands

R2-2507384 The introduction of NTN VSAT FR1 capabilities in 38.331 Nokia, Nokia Shanghai Bell draftCR Rel-19 38.331 19.0.0 NR\_NTN\_Ku\_bands

### 8.20.2 Other WGs

MINT related

R2-2506707 LS on Broadcasting Information on Disaster Condition of a PLMN from E-UTRAN in Case of Disaster Condition (C1-255678; contact LGE) CT1 LS in Rel-19 MINT\_Ph2 To:RAN2 Cc:SA2

* Noted

R2-2507567 Introduction of MINT in EPS LG Electronics Inc., Nokia discussion Rel-19 MINT\_Ph2

* Noted

*Proposal1: Introduce disaster broadcast information fields for MINT in EPS in existing SIB30.*

*Proposal 2: Introduce a separate disaster roaming access barring for disaster roaming in EPS. Access attempt indicated as disaster roaming in EPS by upper layers only applies the disaster roaming access barring check but not others (other existing access barring control mechanisms)*

*Proposal 3: If other approaches than proposal2 is considered, send an LS to CT1 and SA2 to ask for detailed requirements for access control against disaster roaming in EPS.*

*Proposal 4: Update section 4.2 of 36.304 such that NAS maintains applicable disaster roaming information and CN type for available PLMNs including potential disaster PLMNs for available PLMNs, and AS reports applicable disaster roaming information for available PLMNs autonomously including potential disaster PLMNs and CN type.*

*Proposal 5: To discuss whether to introduce a disaster roaming capability as optional capability without signaling in 36.306.*

R2-2506826 Support for MINT in EPS (MINT\_Ph2) Google discussion Rel-19 R2-2506190

* Noted

*Proposal 1: Discuss which of these options is the most suitable approach for providing configuration of disaster roaming information.*

*Option 1: Reuse SIB30 with existing configurations, i.e., the existing configurations are shared between E-UTRA/EPC and E-UTRA/5GC.*

*Option 2: Reuse SIB30 with R19 configurations.*

*Option 3: Define a new SIB.*

*Proposal 2: Support the ACB parameters (i.e., for access control for emergency call, mobile originated signalling, and mobile originated data) for disaster roaming UEs.*

*Proposal 3: Support the SSAC parameters (i.e., for MMTEL voice and MMTEL video) for disaster roaming UEs.*

*Proposal 4: Support barring skip parameters for MMTEL voice, MMTEL video, and SMS for disaster roaming UEs.*

*Proposal 5: Disucss the following options:*

*Option 1: Don’t support the ACB parameter for CSFB for disaster roaming UEs.*

*Ootion 2: Support the ACB parameter for CSFB for disaster roaming UEs.*

*Option 3: Send an LS to CT1/SA1 to ask whether CSFB is applicable to a disaster roaming UE. RAN2 decides whether to support the ACB parameter for CSFB for disaster roaming UEs based on CT1/SA1 reply.*

*Proposal 6: Disucss the following options:*

*Option 1: Don’t support the EAB parameters for disaster roaming UEs.*

*Option 2: Support the EAB parameters for disaster roaming UEs.*

*Option 3: Send an LS to CT1/SA1 to ask whether EAB is applicable to a disaster roaming UE. RAN2 decides whether to support the EAP parameters for disaster roaming UEs based on CT1/SA1 reply.*

*Proposal 7: Disucss the following options:*

*Option 1: Don’t support the ACDC parameters for disaster roaming UEs.*

*Option 2: Support the ACDC parameters for disaster roaming UEs.*

*Option 3: Send an LS to CT1/SA1 to ask whether ACDC is applicable to a disaster roaming UE. RAN2 decides whether to support the EAP parameters for disaster roaming UEs based on CT1/SA1 reply.*

*Proposal 8: Access barring parameters for disaster roaming are included with the disaster roaming information in the same SIB.*

*Proposal 9: Support per-PLMN disaster roaming access barring parameters.*

*Proposal 10: Reuse the existing access barring check for disaster roaming specific access barring*

*Proposal 11: If the disaster roaming specific access barring parameters are not broadcast on the cell, disaster roaming UEs should use the legacy access barring parameters (if broadacst) for access barring check.*

R2-2507175 Impacts of MINT-EPS feature on RAN2 specifications Lenovo discussion Rel-19 MINT\_Ph2

* Noted

*Proposal 1: Introduce new SIBX for configuring disaster roaming information in MINT-EPS.*

*Proposal 2: Apply new access barring mechanism based on barring factor and barring time for disaster roaming UEs and broadcast the corresponding parameters via SIB2.*

*Proposal 3: Confirm that the MINT-EPS feature does not affect TS 36.304.*

*Proposal 4: Specify the MINT-EPS feature for the UE as an optional feature w/o capability signaling in TS 36.306.*

*Proposal 5: Introduce the stage 2 description of MINT-EPS feature in the existing description of MINT-5GS feature in TS 36.300, clause 24.10.*

Discussion

- Lenovo explain that they want new SIB due to some concern on signalling overhead, but fine to go with majority.

Issue 1, new sib or sib 30

- Qualcomm think using existing SIB is very simple.

- Samsung wonder whether we do need to introduce new field like commonPLMNsWithDisasterConditionEPS or can we reuse. Qualcomm also think we do not need this new filed. Lenovo think technically this might be useful so perhaps we can have this new filed.

* Introduce disaster broadcast information fields for MINT in EPS in existing SIB30.

Issue 2, whether to introduce a separate disaster roaming access barring

- Goolge think reuse LTE is simpler from UE implementation point of view.

- Lenovo, LG E, Nokia, Samsung think we should introduce.

- Google think CT1 never discuss this. Lenovo think we can decide and inform them. LG E fine to do so.

* Introduce a separate disaster roaming access barring for disaster roaming in EPS. Access attempt indicated as disaster roaming in EPS by upper layers only applies the disaster roaming access barring check but not others
* Ask CT1 about the handling of the emergency call for the disaster roaming case
* [AT131bis][204][NR\_Others] On support for MINT in EPS (LG E)

 Intended outcome: Draft LS to CT1, CC SA2, SA1 to inform our conclusion (draft LS in R2-2507735), review the CRs (R2-2507568/70/71/72) and update if needed

 Deadline: before Friday CB

R2-2507737 Summary of [AT131bis][204] ][NR\_Others] On support for MINT in EPS

* Noted

LS

R2-2507735 Draft reply LS to CT1 on support for MINT in EPS

* LS is updated by replacing the last paragraph in section 1 with ‘RAN2 understands that during access control for disaster roaming access in 5GS, Access Identity 3 related access control only applies and access category related access control is bypassed. Therefore RAN2 made similar changes to the EPS case. As a consequence, RAN2 understands that disaster roaming access for emergency call is not treated differently from other disaster roaming access for non-emergency call in terms of access control. RAN2 would like to ask if this is in line with the intention of access control toward disaster roaming access.’
* Updated LS is approved in R2-2507744

CRs

R2-2507738 CR to 36.300 on support for MINT in EPS

* RAN2 to in-principle agree the CR to 36.300 based on the content in R2-2507738 (replacing the term ‘EPC’ to ‘EPS’ and ‘5GC’ to ‘5GS’)

R2-2507739 CR to 36.306 on support for MINT in EPS

* The CR to 36.306 in R2-2507739 is in-principle agreed.

R2-2507568 CR to 36.331 Introduction of MINT in EPS LG Electronics Inc., Nokia CR Rel-19 36.331 19.0.0 5171 - B MINT\_Ph2

* Revised in R2-2507740

R2-2507740 draft CR to 36.331 on support for MINT in EPS (with barring parameters in SIB2)

* Revised in R2-2507741

R2-2507741 draft CR to 36.331 on support for MINT in EPS (with barring parameters in SIB30)

* Will be further discussed in the post meeting email discussion

Discussions on CR to 36.331

whether barring parameters for disaster roaming are included in SIB2 (Option 1) or SIB30 (Option 2)

- Samsung think both options are fine, but think it is slightly better to put it in SIB2. Ericsson, Lenovo share this view.

- Qualcomm think Option 2 is better, and would like to avoid impact to all other UEs that are receiving SIB2. Qualcomm has strong concern in requiring changes to SIB2. Google share this view and think if we put all the related information for disaster roaming in a single SIB then it does not impact other UEs who do not care these info.

* Barring parameters for disaster roaming are included in SIB30

On need for CR to 36.304

* CR to 36.304 is not needed
* [Post131bis][219][NR\_Others] CR for support for MINT in EPS (LG E)

Intended outcome: Update the CRs to 36.331 and 36.300 for agreement in-principle

Deadline: Short

R2-2506827 Introduction of MINT in EPS Google CR Rel-19 36.331 18.6.0 5155 1 B TEI19 R2-2506192

R2-2506829 Introduction of MINT in EPS Google CR Rel-19 36.306 18.5.0 1924 1 B TEI19 R2-2506193

R2-2506830 Introduction of MINT in EPS Google CR Rel-19 36.300 18.5.0 1431 1 B TEI19 R2-2506194

* The above three CRs are not pursued.

R2-2507568 CR to 36.331 Introduction of MINT in EPS LG Electronics Inc., Nokia CR Rel-19 36.331 19.0.0 5171 - B MINT\_Ph2

R2-2507569 CR to 36.304 Introduction of MINT in EPS LG Electronics Inc. CR Rel-19 36.331 19.0.0 5172 - B MINT\_Ph2 Withdrawn

R2-2507570 CR to 36.304 Introduction of MINT in EPS LG Electronics Inc., Nokia CR Rel-19 36.304 19.0.0 0886 - B MINT\_Ph2

R2-2507571 CR to 36.306 Introduction of MINT in EPS LG Electronics Inc., Nokia CR Rel-19 36.306 19.0.0 1932 - B MINT\_Ph2

R2-2507572 CR to 36.300 Introduction of MINT in EPS LG Electronics Inc., Nokia CR Rel-19 36.300 19.0.0 1437 - B MINT\_Ph2

R2-2506827 Introduction of MINT in EPS Google CR Rel-19 36.331 18.6.0 5155 1 B TEI19 R2-2506192

R2-2506829 Introduction of MINT in EPS Google CR Rel-19 36.306 18.5.0 1924 1 B TEI19 R2-2506193

R2-2506830 Introduction of MINT in EPS Google CR Rel-19 36.300 18.5.0 1431 1 B TEI19 R2-2506194

On RAT restriction

Moved from 8.19.2

R2-2506705 Reply LS on UE usage of the RAT restrictions (C1-255319; contact: Apple) CT1 LS in Rel-19 ECRATU To:RAN2 Cc:CT4, RAN

* Noted

R2-2507100 Restriction on RAT utilization Apple, OPPO, InterDigital, Huawei, HiSilicon, Nokia, Samsung, Ericsson draftCR Rel-19 25.304 18.0.0 B ECRATU

Discussion

- Lenovo think the behaviour in 5.2.6.1.3 is ‘shall not’, instead of should. Apple think this is optional for UE.

- Samsung think ‘Maintain a list of equivalent PLMN identities and provide the list to AS.’ is not need for the cell selection part.

* Content of the draft CR is agreeable, will have a real CR submitted to the next R2 meeting for technical endorsement.

On suspension of trace production

R2-2506756 LS on temporary suspension of trace production (S5-253909; contact: Ericsson) SA5 LS in Rel-19 TraceQoE\_OAM To:RAN3, RAN2

* Noted

R2-2507394 Discussion on LS temporary suspension of trace production L.M. Ericsson Limited LS out Rel-19 To:SA5 Cc:RAN3

* Noted

*Proposal 1 Send a reply LS to SA5, stating that the addition of the mentioned attributes has no impact on RAN2 and that RAN2 consents to the attributes being added (see draft LS in the Annex).*

* [AT131bis][205][NR\_Others] Draft LS on temporary suspension of trace production (Ericsson)

 Intended outcome: Draft LS in R2-2507736

 Deadline: before Friday CB

R2-2507736 Reply LS on temporary suspension of trace production

* Revised the LS by deleting ‘as a UE in RRC IDLE/INACTIVE cannot be informed about the suspension’.
* The final LS is approved in R2-2507745

Other topics with LSin

R2-2506749 Reply LS on energy saving indication from CN to RAN (S2-2507784; contact: LGE) SA2 LS in Rel-19 EnergySys To:RAN3 Cc:RAN2

* Noted

R2-2506758 Reply to RAN2 LS on Number of UEs in RRC\_INACTIVE state with data transmission (S5-254084; contact: China Telecom) SA5 LS in Rel-19 PM\_KPI\_5G\_Ph4 To:RAN2 Cc:RAN3

* Noted

*Chair: the other documents will be handled in other sessions.*

R2-2506706 Reply LS to SA4 on the RAN simulation assumptions for ULBC (C1-255650; contact: Qualcomm) CT1 LS in Rel-19 FS\_ULBC To:SA4 Cc:SA2, SA1, RAN1, RAN2, RAN4

R2-2506716 Reply LS on the RAN simulation assumptions for ULBC (R1-2506541; contact: Qualcomm) RAN1 LS in Rel-19 FS\_ULBC To:SA4 Cc:RAN4, RAN2, SA2, CT1

R2-2506732 Response LS on the RAN simulation assumptions for ULBC (R4-2511782; contact: Xiaomi) RAN4 LS in Rel-20 FS\_ULBC To:SA4 Cc:RAN2, RAN1, SA2

R2-2506746 Reply LS on the RAN simulation assumptions for ULBC (S2-2507578; contact: Qualcomm) SA2 LS in Rel-20 FS\_ULBC To:SA4 Cc:RAN1, RAN2, RAN4, SA1, CT1

R2-2506754 LS on bundling period and SPS for ULBC (S4aA250258; contact: Qualcomm) SA4 LS in Rel-20 FS\_ULBC To:RAN2 Cc:RAN1

## List of post meeting email discussions

Short email discussions

* [Post131bis][207][LPWUS] CR for TS 38.304 (CATT)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][208][LPWUS] CR for TS 38.331 (vivo)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][209][LPWUS] CR for TS 38.321 (Apple)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][210][LPWUS] CR for TS 38.300 (Ericsson)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][211][LPWUS] CR for TS 38.306 (Huawei)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][212][SBFD] CR for TS 38.321 (Samsung)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][213][SBFD] CR for TS 38.331 (Huawei)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][214][SBFD] CR for TS 38.300 (CATT)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][215][MIMOevo] CR for TS 38.321 (Samsung)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][216][MIMOevo] CR for TS 38.331 (Ericsson)

Intended outcome: Update the CR for endorsement

Deadline: Short

* [Post131bis][217][NR\_Others] LS to RAN4 (CATT)

Intended outcome: Approve the LS as per the agreements

Deadline: Short

* [Post131bis][219][NR\_Others] CR for support for MINT in EPS (LG E)

Intended outcome: Update the CRs to 36.331 and 36.300 for agreement in-principle

Deadline: Short

Long email discussions

* [Post131bis][218][NR\_Others] CR for TS 38.331 (CATT)

Intended outcome: Discuss and prepare the CR, for submission to the next meeting

Deadline: Long