3GPP TSG-RAN WG2 Meeting #131 draft R2-2506202

Bangalore, India Aug 25th – 29th, 2025

Source: RAN2 Vice Chairman (CATT)

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

Agenda item: 9.2

## Organizational email discussion

* [AT131][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))

R2-2505013 LS on maximum transmission power for STxMP (R1-2504839; contact: Huawei) RAN1 LS in Rel-18 NR\_MIMO\_evo\_DL\_UL-Core To:RAN4 Cc:RAN2

* ?? Noted

R2-2505019 Reply LS on differentiation of sDCI based mTRP and sTRP (R1-2504885; contact: CATT) RAN1 LS in Rel-18 NR\_MIMO\_evo\_DL\_UL-Core To:RAN2

* ?? Noted

R2-2505462 Correction on simultaneousU-TCI-UpdateListx for Unified TCI State Update CATT, Samsung CR Rel-18 38.331 18.6.0 5418 - F NR\_MIMO\_evo\_DL\_UL-Core

R2-2506160 Correction to reportQuantity Ericsson CR Rel-18 38.331 18.6.0 5462 - F NR\_MIMO\_evo\_DL\_UL-Core

# 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: 1 TU

Tdoc Limitation: 3 tdocs

### 8.4.1 Organizational

LS, Rapporteur input, including workplan, Running CRs, email discussion summary, open issue list(s), etc.

LS

R2-2505020 Reply LS on LP-WUS in RRC\_CONNECTED (R1-2504888; contact: NTT DOCOMO) RAN1 LS in Rel-19 NR\_LPWUS To:RAN2

* ?? Noted

R2-2505025 Reply LS on LP-WUS UE RF (R1-2504943; contact: vivo) RAN1 LS in Rel-19 NR\_LPWUS-Core To:RAN4 Cc:RAN2

* ?? Noted

R2-2505028 LS on TP to TS38.300 for Rel-19 LP-WUS/WUR (R1-2505070; contact: vivo) RAN1 LS in Rel-19 NR\_LPWUS-Core To:RAN2

* ?? Noted

R2-2505035 Reply LS on LP-WUS subgrouping progress (R3-253846; contact: NEC) RAN3 LS in Rel-19 NR\_LPWUS-Core To:RAN2

* ?? Noted

CRs

R2-2505234 Introduction of LP-WUS in TS 38.304 CATT CR Rel-19 38.304 18.4.0 0440 - B NR\_LPWUS-Core

R2-2505392 Introduction of LP-WUS/WUR in RRC vivo (Rapporteur) CR Rel-19 38.331 18.6.0 5416 - B NR\_LPWUS-Core

R2-2505469 Introduction of LP-WUS in TS 37.340 ZTE Corporation, Sanechips CR Rel-19 37.340 18.6.0 0420 - B NR\_LPWUS-Core

R2-2505476 Running MAC CR for LP-WUS Apple (Rapporteur) CR Rel-19 38.321 18.6.0 2103 - B NR\_LPWUS-Core

R2-2505863 Introduction of Low-Power Wake-Up Signal and Receiver for NR Ericsson CR Rel-19 38.300 18.6.0 1015 - B NR\_LPWUS-Core

* ?? The above 5 CRs are taken as baseline for further updates and review

R2-2505670 Introduction of R19 LP-WUS UE Capabilities Huawei, HiSilicon draftCR Rel-19 38.306 18.6.0 B NR\_LPWUS-Core

* ?? Endorsed

R2-2505380 Introduction of R19 LP-WUS UE Capabilities Huawei, HiSilicon CR Rel-19 38.306 18.6.0 1325 - B NR\_LPWUS-Core Withdrawn

Email discussion summary

R2-2505235 Discussion of [Post130][211][LPWUS] Running CR for 38.304 (CATT) CATT discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 1(11/2): In the running CR, UE supporting LP-WUS is used instead of LP-WUS UE.*

*Proposal 2(11/0): Nothing is needed on high priority frequency for serving cell measurement offloading or measurement relaxation with LP-WUS in 38.304 running CR if the corresponding higher priority frequency relaxation has been captured in RAN4 specification.*

*Proposal 3 (13/0): Same as LP-WUS monitoring, it is up to UE implementation to choose whether SSB measurement based or OOK LP-SS measurement based are used for RRM relaxation/offloading conditions if UE supports both measurement types.*

*Proposal 4: RAN2 discuss whether not to redefine aspects in TS 38.304 which are already defined in TS 38.213, i.e. the details regarding the locations, offsets, and UE behaviors related to LO (LP-WUS Occasion) monitoring.*

R2-2505393 Discussion summary and list of RRC open issue for LP-WUS WUR vivo discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Open issue RRC-6 (essential): the value range of ThresholdPLP and ThresholdQLP for LR measurement based threshold*

*Proposal 1: [8/13] RAN2 assumes the value range of ThresholdPLP and ThresholdQLP for LR measurement based threshold for entry/exit condition for LP-WUS monitoring and RRM relaxation/offloading is captured as below in RRC. It could be revised based on inputs from RAN1/RAN4, if any.*

*The IE ThresholdLP is used to indicate a measured RSRP threshold for LP-WUS. Actual value of threshold = field value \* 2 [dBm].*

*ThresholdP-LP ::= INTEGER (-80..0)*

*The IE ThresholdQ-LP is used to indicate a measured RSRQ threshold for LP-WUS. Actual value of threshold = field value [dB].*

*ThresholdQ-LP ::= INTEGER (-34..0)*

*Open issue RRC-13 (essential): how to determine the cell quality for LR based measurement.*

*Proposal 2: [11/14] LR measurement based RX level and cell quality value should be derived by UE implementation in multi-beam operations.*

*Proposal 3: RAN2 will keep the current terminologies in RAN2 specification, i.e. LP-WUS, LP-SS, LO (LP-WUS Occasion), LR, and MR.*

 *- 11/14 companies voted to keep the terminology: LP-WUS, LP-SS, LO (LP-WUS Occasion), and LR.*

 *- 12/13 companies voted to keep the terminology: MR.*

R2-2505477 Report of [Post130][213][LPWUS] Running CR for TS 38.321 (Apple) Apple (Rapporteur) discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*For open issue 1: Support of LP-WUS with dual DRX group*

*Proposal 1: Confirm the following working assumption to support LP-WUS with dual DRX group.*

*RAN2#130 progress*

* Working assumption: LP-WUS can be configured on the PCell with secondary DRX. LP-WUS with secondary DRX is supported with option 1-1 and 1-2, i.e. the UE monitors LP-WUS before the on-duration occasion or periodically outside ActiveTime. When LP-WUS is detected, then UE starts the drx-onDurationTimer (with option 1-1) or the lpwus-PDCCHMonitoringTimer (with option 1-2) in both DRX groups.*

*Proposal 2: If secondary DRX group is configured, UE monitors LP-WUS only when both DRX groups are not in DRX active time. (NOTE: One company has concern)*

*Proposal 2a: If secondary DRX group is configured, UE monitors LP-WUS only when both DRX groups are not in DRX active time. Regarding the RAN1 agreement on not supporting simultaneous LR and MR operation, further check with RAN1 whether the agreement is applicable to DC and CA, and whether it has any impact on per CG DRX operation.*

*Proposal 3: If secondary DRX group is configured, the lpwus-PDCCH-MonitoringTimer configuration for secondary DRX group is different from that for the default DRX group.*

*Proposal 3a: The lpwus-PDCCH-MonitoringTimer configuration for secondary DRX group is smaller than that for the default DRX group.*

*For open issue 2: UE operation for the potential collision*

*Proposal 4: Confirm the following RAN2#129bis working assumption for Option 1-1.*

*RAN2#129bis progress*

* Working assumption for the case of potential collision (if any): In Option 1-1, when the UE is not able to monitor the LP-WUS occasion(s) the UE should start the drx-OnDurationTimer (as if LP-WUS was detected). FFS for Option 1-2.*

*Proposal 5: Agree the proposed LP-WUS TP (with the addition MUSIM gap case) to capture the UE operation in Option 1-1 for the collision and timing issue.*

*Proposal 6: For Option 1-2, NW configures UE whether to start the lpwus-PDCCH-MonitoringTimer in collision cases, i.e. when the UE is not able to monitor the LP-WUS occasion(s).*

*For open issue 3: MAC spec impact to support the LP-WUS in Cell DTX operation*

*Proposal 7: There is no MAC spec impact to reflect the LP-WUS operation in Cell DTX operation.*

*Proposal 9: RAN2 confirm that the available UL occasions (e.g. SR occasion, RACH occasion, CG occasion) are MR-ready occasions.*

Others

R2-2505478 Draft Reply LS on LP-WUS in RRC\_CONNECTED Apple LS out Rel-19 NR\_LPWUS-Core RAN1

### 8.4.2 Procedure and configuration of LP-WUS in RRC\_IDLE/INACTIVE

Procedure and configuration of LP-WUS indicating paging monitoring triggered by LP-WUS, including at least configuration, sub-grouping, and entry/exit condition for LP-WUS monitoring

RRC-12, whether/how to enable/disable LP-WUS

R2-2505381 Summary of [Post130][222][LPWUS] Potential solution to support enabling/disabling LP-WUS monitoring in IDLEI/NACTVE per UE (Huawei) Huawei, HiSilicon discussion Rel-19

* ?? Noted

*Proposal: (RRC-12) RAN2 to down-select from NAS signalling or RRC signalling to support enabling/disabling LP-WUS per UE.*

R2-2506038 IDLE/Inactive LP-WUS disabling and enabling Qualcomm Incorporated discussion NR\_LPWUS-Core

* ?? Noted

*Proposal 1 RAN2 selects one of the following solutions to disable or enable LP-WUS.*

*Option 4a: gNB sets proper offset between an LO and a reference PO/PF, UE determines whether to disable LP-WUS monitoring via comparing the offset and supported wake up delay.*

*Option 2a: The gNB can disable or enable LP-WUS using dedicated RRC message, e.g. RRC release message, and the enabling and disabling indication is only valid in current cell.*

38304-8: Whether LP-WUS is only used in the last used cell or in any cell

R2-2505605 Discussion on LP-WUS procedure and configuration OPPO discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

 *Proposal 3 LP-WUS can be used in any cell, i.e., don’t introduce lastUsedCellOnly for LP-WUS.*

R2-2505856 LP-WUS in Idle and Inactive Ericsson discussion Rel-19 NR\_LPWUS-Core R2-2504288

* ?? Noted

*Proposal 1 Similar as with PEI LP-WUS can be configured to be used in lastUsedCellOnly or in any cell where LP-WUS is configured.*

38304-9, Subgroup ID for LP-WUS outside CN PTW

R2-2505605 Discussion on LP-WUS procedure and configuration OPPO discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 1 In RRC\_INACTIVE state, for LP-WUS, when the UE uses the same i\_s as for RRC\_IDLE state, the UE shall use the same iPO LP-WUS as for RRC\_IDLE state. Otherwise, the UE determines the iPO for LP-WUS for based on the i\_s for RRC\_INACTIVE state.*

*Proposal 2 In RRC\_INACTIVE state with CN configured PTW, the SubgroupID for LP-WUS used outside CN PTW is the same as the SubgroupID used inside CN PTW.*

38304-10: FFS whether/how LP-WUS with SDT is supported

R2-2505479 Remaining issues of LP-WUS in RRC\_IDLE/INACTIVE Apple discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 6: Introduce the new UE capability to indicate whether UE supports the LPWUS when SDT is enabled.*

*Proposal 7: Introduce the new configuration in RRCRelease message to enable/disable LP-WUS when SDT is enabled.*

R2-2505976 Remaining issues on LP-WUS in RRC IDLE or INACTIVE LG Electronics Inc. discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 7 [OI 38304-10] Confirm that UE can initiate MO/MT-SDT while monitoring LP-WUS. No CR change is needed.*

Other issues

R2-2505856 LP-WUS in Idle and Inactive Ericsson discussion Rel-19 NR\_LPWUS-Core R2-2504288

* ?? Noted

*Proposal 11 If the UE is not able to monitor the LP-WUS then the UE is required to monitor the following PO.*

R2-2505394 Discussion on LP-WUS WUR in RRC\_IDLE INACTIVE vivo discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Entry/exit condition for LP-WUS monitoring*

*Proposal 2: The conclusion on the entry/exit conditions for RRM relaxation/offloading for different LR types is applicable for the entry/exit conditions for LP-WUS monitoring, which is already captured in RRC and 38.304 running CR:*

*- RAN2 assumes the entry/exit thresholds for LP-WUS monitoring for OFDM-based WUR measuring LP-SS only are the same as that for OOK-based WUR measuring LP-SS. It can be revisited based on RAN1/RAN4 process, if any. Network is allowed to provide either OOK based threshold or OFDM based WUR measuring SSB threshold or both.*

*- RAN2 assumes for the entry/ exit conditions of LP-WUS monitoring: separate MR thresholds (according to RAN1 agreement)/LR thresholds can be configured for different types of LP WUR if a cell supports both types of LRs (can revisit based on RAN1 and RAN 4 progress, if any).*

*Chair: other issues can be discussed in CB session if time allows*

R2-2505236 Open issues on LP-WUS in IDLE and INACTIVE CATT discussion Rel-19 NR\_LPWUS-Core

R2-2505280 Remaining issues on LP-WUS paging monitoring Xiaomi Communications, Huawei, HiSilicon, ZTE Corporation, Sanechips, Apple, Ericsson discussion

R2-2505336 Discussion on LP-WUS in RRC\_IDLE INACTIVE NEC discussion NR\_LPWUS-Core

R2-2505379 Further discussion on LP-WUS in RRC\_IDLE/INACTIVE Huawei, HiSilicon discussion Rel-19

R2-2505381 Summary of [Post130][222][LPWUS] Potential solution to support enabling/disabling LP-WUS monitoring in IDLEI/NACTVE per UE (Huawei) Huawei, HiSilicon discussion Rel-19

R2-2505394 Discussion on LP-WUS WUR in RRC\_IDLE INACTIVE vivo discussion Rel-19 NR\_LPWUS-Core

R2-2505479 Remaining issues of LP-WUS in RRC\_IDLE/INACTIVE Apple discussion Rel-19 NR\_LPWUS-Core

R2-2505529 Procedure and Configuration of LP-WUS in RRC Idle Inactive Mode Samsung discussion Rel-19

R2-2505588 Remaining issues on LP-WUS in IDLE and INACTIVE NTT DOCOMO INC. discussion Rel-19 NR\_LPWUS-Core

R2-2505605 Discussion on LP-WUS procedure and configuration OPPO discussion Rel-19 NR\_LPWUS-Core

R2-2505629 Discussion on prioritizing the frequencies supporting LP-WUS Huawei, HiSilicon, vivo, Nokia, Samsung, LG Electronics Inc., Apple, Ericsson, OPPO, Sharp, NEC discussion Rel-19 NR\_LPWUS-Core

R2-2505655 Disabling/enabling LP-WUS in RRC Idle/Inactive mode Sony discussion Rel-19 NR\_LPWUS-Core

R2-2505682 Open issues on LP-WUS in RRC\_IDLE/INACTIVE mode Lenovo discussion Rel-19

R2-2505752 LP-WUS in IDLE and INACTIVE Nokia discussion Rel-19 NR\_LPWUS-Core

R2-2505779 Remaining issues in IDLE/INACTIVE procedure for LP-WUS Tejas Network Limited discussion Rel-19

R2-2505856 LP-WUS in Idle and Inactive Ericsson discussion Rel-19 NR\_LPWUS-Core R2-2504288

R2-2505906 Remaining issues on LP-WUS operation in RRC\_IDLE/INACTIVE modes InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core

R2-2505968 Remaining issues of LP-WUS operation in IDLE/INACTIVE CMCC discussion Rel-19 NR\_LPWUS-Core

R2-2505976 Remaining issues on LP-WUS in RRC IDLE or INACTIVE LG Electronics Inc. discussion Rel-19 NR\_LPWUS-Core

R2-2505992 Procedure and configuration of LP-WUS for IDLE and INACTIVE mode ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

R2-2506038 IDLE/Inactive LP-WUS disabling and enabling Qualcomm Incorporated discussion NR\_LPWUS-Core

### 8.4.3 RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE

RRM relaxation of UE MR for both serving and neighbor cell measurements, and UE serving cell RRM measurement offloaded from MR to LP-WUR, including the necessary conditions

RRC-7/38304-3 Whether separate exit condition is needed for Rel-19 RRM relaxation

R2-2505967 Remaining issues of RRM measurement relaxation and offloading in RRC\_IDLE INACTIVE CMCC discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 1: No separate exit condition is needed for serving cell RRM relaxation, and the exit condition can be defined as failing to meet the entry condition, i.e., MR or LR is below the configured threshold.*

R2-2505907 Remaining issues on RRM measurement relaxation and offloading InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 3: For relaxed case, support the exit condition based on LR measurement.*

RRC-10/38304-6, Whether UE low mobility criterion or stationary criterion should be considered for RRM relaxation/offloading.

R2-2506040 Open issues on LP-WUS RRM measurement relaxation and offloading Qualcomm Incorporated discussion NR\_LPWUS-Core

* ?? Noted

*Proposal 5 RAN2 does not consider low mobility or stationary status to evaluate whether to enter or exit from Rel-19 RRM relaxation/offloading mode.*

R2-2505530 RRM measurement relaxation and offloading in RRC Idle Inactive Mode Samsung discussion Rel-19

* ?? Noted

*Proposal 2: (RRC-10, 38304-6) For Rel19 MR serving/neighbour cell measurement relaxation for UEs capable of LP-WUS, UE not at cell edge and UE with low mobility are reused.*

*Proposal 3: (RRC-10, 38304-6) For Rel19 serving cell measurement (full) offloading for UEs capable of LP-WUS, UE not at cell edge and UE with low mobility are reused.*

RRC-15/38304-2, FFS (if needed) on enhancements based on R16 criteria (e.g., based on the LR measurements) for the case when MR serving cell measurement results are not available.

R2-2505395 Discussion on RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE vivo discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 8: (RRC-15/38304-2) There is no impact on R16/R17 criterion of neighboring cell RRM relaxation regardless whether MR serving cell RRM measurement results are available or not, i.e., LR measurement won’t be used for R16/R17 RRM relaxation condition.*

38304-12: FFS the impact on legacy low-mobility criteria for MR with LP-WUS.

R2-2505289 Remaining issues on RRM measurement relaxation for RRC\_IDLE\_INACTIVE Xiaomi Communications discussion

* ?? Noted

*Proposal 4 [38304-12] When UE exits fully offload state, UE will reset the reference RSRP for “low mobility” criterion evaluation for MR if configured*

R2-2505237 Open issues on RRM Relaxation and Offloading in IDLE and INACTIVE CATT discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 5: RAN2 confirm the case that the UE (re)-starts the evaluation of R16 low mobility criterion after the UE exits fully offloading case is similar to the case that the UE (re)-starts the evaluation of R16 low mobility criterion after camping on a cell for a period. There is no specification impact for R16 low mobility criterion when UE exits using fully offloading.*

*Chair: other issues can be discussed in CB session if time allows*

R2-2505237 Open issues on RRM Relaxation and Offloading in IDLE and INACTIVE CATT discussion Rel-19 NR\_LPWUS-Core

R2-2505289 Remaining issues on RRM measurement relaxation for RRC\_IDLE\_INACTIVE Xiaomi Communications discussion

R2-2505395 Discussion on RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE vivo discussion Rel-19 NR\_LPWUS-Core

R2-2505480 Remaining issues of LP-WUS RRM Measurement Apple discussion Rel-19 NR\_LPWUS-Core

R2-2505530 RRM measurement relaxation and offloading in RRC Idle Inactive Mode Samsung discussion Rel-19

R2-2505596 Remaining issues on RRM measurement relaxation and offloading NTT DOCOMO INC. discussion Rel-19 NR\_LPWUS-Core

R2-2505606 Discussion on the remaining issues on RRM measurement OPPO discussion Rel-19 NR\_LPWUS-Core

R2-2505683 Open issues on RRM measurement relaxation and offloading in RRC\_IDLE/INACTIVE Lenovo discussion Rel-19

R2-2505737 Further discussion on the criteria for RRM measurement relaxation and offloading Huawei, HiSilicon discussion Rel-19 NR\_LPWUS-Core

R2-2505753 RRM measurement relaxation in RRC\_IDLE/INACTIVE Nokia discussion Rel-19 NR\_LPWUS-Core

R2-2505780 Remaining issues in LP-WUS based RRM relaxation and offloading Tejas Network Limited discussion Rel-19

R2-2505803 Remaining issues for LP-WUS RRM ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

R2-2505857 LP-WUS and RRM measurements Ericsson discussion Rel-19 NR\_LPWUS-Core R2-2504289

R2-2505907 Remaining issues on RRM measurement relaxation and offloading InterDigital, Inc. discussion Rel-19 NR\_LPWUS-Core

R2-2505967 Remaining issues of RRM measurement relaxation and offloading in RRC\_IDLE INACTIVE CMCC discussion Rel-19 NR\_LPWUS-Core

R2-2505977 Remaining issues on measurement offloading and relaxation LG Electronics Inc. discussion Rel-19 NR\_LPWUS-Core

R2-2506040 Open issues on LP-WUS RRM measurement relaxation and offloading Qualcomm Incorporated discussion NR\_LPWUS-Core

### 8.4.4 Procedures for LP-WUS in RRC\_CONNECTED

Procedures to allow UE MR PDCCH monitoring triggered by LP-WUS including activation and deactivation procedure of LP-WUS monitoring.

MAC-X1 The impact to the BWP switching mechanism

R2-2505630 Further discussion on LP-WUS for RRC\_CONNECTED mode Huawei, HiSilicon discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 6: (MAC-X1) The bwp-InactivityTimer can be stopped when UE monitors LP-WUS, in this case, the UE needs to (re)start the bwp-InactivityTimer when it receives the LP-WUS for PDCCH monitoring. Otherwise, there is no impact on bwp-InactivityTimer.*

R2-2505684 Open issues on LP-WUS in RRC Connected mode Lenovo discussion Rel-19

* ?? Noted

*Proposal 6: (MAC-X1) UE does not start or re-start the bwp-InactivityTimer when receiving the LP-WUS.*

MAC-X2 Whether to consider the multiple LP-WUS cycles

R2-2505396 Discussion on LP-WUS WUR in RRC\_Connected vivo discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 4: (MAC-X2) For Option 1-2, two LP-WUS cycles will be configured. RAN2 assumes the design of switching between long LP-WUS cycle and short LP-WUS cycle is same as the C-DRX mechanism, including the MAC CE control, time control.*

R2-2505993 Procedure for LP-WUS in RRC\_Connected state ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 3(RRC-3): For Option 1-2, RAN2 confirms that one single LP-WUS cycle is defined to determine the LP-WUS monitoring occasion.*

MAC-X3 UAI of the LP-WUS preference

R2-2505630 Further discussion on LP-WUS for RRC\_CONNECTED mode Huawei, HiSilicon discussion Rel-19 NR\_LPWUS-Core

* ?? Noted

*Proposal 1: (MAC-X3) UE can send assistance information to the network indicating to disable the LP-WUS functionality or whether the LP-WUS can be enabled again.*

*Proposal 2: (MAC-X3) When to send the assistance information is up to UE implementation, without additional configuration to the UE.*

*Chair: other issues can be discussed in CB session if time allows*

R2-2505108 Discussing on LP-WUS monitoring in Connected mode Xiaomi discussion Rel-19 NR\_LPWUS-Core

R2-2505238 Analysis on LP-WUS for RRC\_CONNECTED CATT discussion Rel-19 NR\_LPWUS-Core

R2-2505396 Discussion on LP-WUS WUR in RRC\_Connected vivo discussion Rel-19 NR\_LPWUS-Core

R2-2505463 Remaining issues on LP-WUS in RRC\_CONNECTED LG Electronics Inc. discussion Rel-19 NR\_LPWUS-Core

R2-2505481 Remaining issues of LP-WUS in RRC\_CONNECTED Apple discussion Rel-19 NR\_LPWUS-Core

R2-2505531 Procedures for LP-WUS in RRC Connected Mode Samsung discussion Rel-19

R2-2505581 LP-WUS in RRC\_CONNECTED Nokia, Nokia Shanghai Bell discussion NR\_LPWUS-Core

R2-2505597 Remaining issues on LP-WUS in RRC\_CONNECTED NTT DOCOMO INC. discussion Rel-19 NR\_LPWUS-Core

R2-2505607 Discussion on LP-WUS in RRC\_CONNECTED OPPO discussion Rel-19 NR\_LPWUS-Core

R2-2505630 Further discussion on LP-WUS for RRC\_CONNECTED mode Huawei, HiSilicon discussion Rel-19 NR\_LPWUS-Core

R2-2505645 LP-WUS in CONNECTED mode InterDigital discussion Rel-19 NR\_LPWUS-Core

R2-2505684 Open issues on LP-WUS in RRC Connected mode Lenovo discussion Rel-19

R2-2505782 Remaining issues in CONNECTED procedure for LP-WUS Tejas Network Limited discussion Rel-19

R2-2505858 LP-WUS in Connected Ericsson discussion Rel-19 NR\_LPWUS-Core R2-2504290

R2-2505942 Discussion on LP-WUS operation in CONNECTED mode CMCC discussion Rel-19 NR\_LPWUS-Core

R2-2505993 Procedure for LP-WUS in RRC\_Connected state ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core

R2-2506039 Open issues on LP-WUS operation in CONNECTED state Qualcomm Incorporated discussion NR\_LPWUS-Core

## 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: 0.5 TU

Tdoc Limitation: 2 tdocs

### 8.11.1 Organizational

Incoming LS, Rapporteur input, including workplan, running CRs, email discussion summary, open issue list(s), etc..

LSin

R2-2505015 Reply LS on simultaneous configuration of SBFD and DC (R1-2504858; contact: Xiaomi) RAN1 LS in Rel-19 NR\_duplex\_evo-Core To:RAN2 Cc:RAN3, RAN4

* ?? Noted

R2-2505030 LS on TP for TS38.300 on Rel-19 SBFD (R1-2505081; contact: Huawei) RAN1 LS in Rel-19 NR\_duplex\_evo-Core To:RAN2 Cc:RAN3

* ?? Noted

CRs

R2-2505088 Introduction of SBFD in TS 38300 CATT CR Rel-19 38.300 18.6.0 1008 - B NR\_duplex\_evo-Core R2-2503422

R2-2505363 Introduction of Rel-19 Evolution of NR duplex operation (SBFD) Huawei, HiSilicon CR Rel-19 38.331 18.6.0 5414 - B NR\_duplex\_evo-Core

R2-2505575 Introduction of Rel-19 Evolution of NR duplex operation (SBFD) for MAC spec Samsung CR Rel-19 38.321 18.6.0 2106 - B NR\_duplex\_evo-Core

* ?? The above 3 CRs are taken as baseline for further updates and review

R2-2505549 Introduction of Rel-19 Evolution of NR duplex operation (SBFD) for MAC spec Samsung CR Rel-19 38.321 18.6.0 2105 - B NR\_duplex\_evo-Core Withdrawn

Email discussion summary

R2-2505364 Summary of [Post130][216][SBFD] Running CR for 38.331 Huawei, HiSilicon discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*[Proposals for easy agreement]:*

*[Proposal for RRC-2] Not to support that a further different SSB RSRP threshold is indicated/configured for an SSB or a group of SSBs. [13/13]*

*[Proposal for RRC-3] Not to pursue the further optimization of parameter signalling of SBFD RACH configuration. [11/12]*

*[Proposal for RRC-6] (Only) support RACH-based LTM cell change in SBFD symbols [10/11]. Add RO type indication in LTM cell switch command MAC CE.*

*[Proposals for discussion]:*

*[Proposal for RRC-1] For the network indicating RO type, use 1 bit signalling (as in the current RRC running CR) [9/13].*

R2-2505560 Summary of the SBFD open issues in MAC Samsung discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*[Proposals for easy agreement without contributions]*

*[Proposal 1 for MAC-1] In RO type switching, for the other RO type, UE can select the set of Random Access resources associated with the same feature or feature combination, and with higher Msg1 repetition number, if the set with the same Msg1 repetition number is not available.*

*If [Proposal 1 for MAC-1] is agreed:*

*[Proposal 2 for MAC-1] In RO type switching, when UE has to select a set of Random Access resources with higher Msg1 repetition number for the other RO type, if there are multiple sets with multiple higher Msg1 repetition numbers available, UE selects the set with next higher Msg1 repetition number.*

### 8.11.2 Random access in SBFD

RAN2 impacts to support SBFD operation to support random access in SBFD symbols by UEs in RRC \_CONNECTED mode and RRC\_IDLE/INACTIVE mode.

Open issue MAC 2-1 and MAC 2-2

R2-2505365 Discussion on MAC open issues for random access in SBFD Huawei, HiSilicon discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*[Proposal for MAC-2-1 and MAC-2-2]: The condition of “when the RACH resources for the same RO type is provided for CBRA” is always satisfied, hence no need to make any additional MAC specification changes (from the current MAC running CR).*

R2-2505590 Discussion on random access procedure in SBFD ZTE Corporation discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*Proposal 1: Support the case that CFRA indicates SBFD RO, but the corresponding common RACH resource on the same BWP does not indicate any SBFD RACH resource.*

*Proposal 2: If a CFRA case indicates to use SBFD RO, when selecting set for the CFRA, UE should:*

* If common RACH resource of the same BWP provides SBFD ROs, UE selects set within SBFD RACH resources;*

* If common RACH resource of the same BWP does not provide SBFD ROs, UE selects set within the legacy RACH resources.*

Open issue MAC 3-1 and MAC 3-2

R2-2505459 Remaining issues on Random Access procedure for SBFD LG Electronics Inc. discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*Proposal 3. [MAC-3-1] No need to clarify on how to derive the SBFD RO locations for CFRA.*

R2-2505559 Discussions on the open issues for Random Access Samsung discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*[MAC-3] Proposal 2: To resolve the ambiguity on SBFD RO location derivation for CFRA, RAN2 to consider one of the following two workable options, where Option 1 is more preferable from the spec impact perspective:*

*- Option 1: Introduce a restriction that network can indicate RO type as SBFD RO for CFRA, only if an SBFD RACH configuration is configured for CBRA, and apply the same configuration for CFRA SBFD RO location derivation.*

*- Option 2: Introduce new RRC signalling to indicate which SBFD RACH configuration should be applied for SBFD RO location derivation for CFRA.*

Open issue MAC 4-1 and MAC 4-2

R2-2505495 Open issues for RACH in SBFD Apple discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*Proposal 5: For RACH Configuration Option 2, all related parameters should be re-initialized as RAN1 intention is to have independent configurations for SBFD and non-SBFD RACH. For RACH Configuration Option 1, at least sbfd-RACHSingleConfig-preambleReceivedTargetPower is re-initialized.*

R2-2505559 Discussions on the open issues for Random Access Samsung discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*[MAC-4] Proposal 3: Parameter initialization should be performed after RO type switching.*

*[MAC-4] Proposal 4: preambleTransMax should be excluded from the parameter initialization.*

R2-2505141 Discussion on RACH in SBFD Xiaomi discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*Proposal 3: (MAC-4) Parameter initialization is needed after RO type switching in the case of RACH configuration Option 2. At least PREAMBLE\_POWER\_RAMPING\_STEP and SCALING\_FACTOR\_BI are initialized. PREAMBLE\_POWER\_RAMPING\_COUNTER should be excluded from the initialization.*

Open issue MAC 5

R2-2505243 Power ramping issue on the RO type fallback OPPO, ZTE Corporation, Sharp, NEC, NTT DOCOMO INC., Qualcomm Incorporated, CATT discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*Proposal: For the RO type fallback between legacy RO and additional RO, a power offset given by the difference between the two quantities of preamble power ramping steps is added.*

R2-2505666 SBFD RA remaining aspects Ericsson discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*Proposal 4 Not support introducing a power offset to compensate the power ramping difference between the two RO types (in SBFD RACH configuration Option 2) for RO type switching.*

*Chair: other issues can be discussed in CB session if time allows*

R2-2505089 Leftover Issues on Random Access in SBFD CATT discussion Rel-19 NR\_duplex\_evo-Core

R2-2505126 Remaining issues of RA for SBFD NEC discussion Rel-19 NR\_duplex\_evo-Core

R2-2505141 Discussion on RACH in SBFD Xiaomi discussion Rel-19 NR\_duplex\_evo-Core

R2-2505243 Power ramping issue on the RO type fallback OPPO, ZTE Corporation, Sharp, NEC, NTT DOCOMO INC., Qualcomm Incorporated, CATT discussion Rel-19 NR\_duplex\_evo-Core

R2-2505244 Clarification on the CFRA for SBFD RO OPPO discussion Rel-19 NR\_duplex\_evo-Core

R2-2505365 Discussion on MAC open issues for random access in SBFD Huawei, HiSilicon discussion Rel-19 NR\_duplex\_evo-Core

R2-2505459 Remaining issues on Random Access procedure for SBFD LG Electronics Inc. discussion Rel-19 NR\_duplex\_evo-Core

R2-2505495 Open issues for RACH in SBFD Apple discussion Rel-19 NR\_duplex\_evo-Core

R2-2505559 Discussions on the open issues for Random Access Samsung discussion Rel-19 NR\_duplex\_evo-Core

R2-2505590 Discussion on random access procedure in SBFD ZTE Corporation discussion Rel-19 NR\_duplex\_evo-Core

R2-2505591 Discussion on the co-existence of SBFD and LTM ZTE Corporation, OPPO, Interdigital, LG, Apple, Charter, Nokia discussion Rel-19 NR\_duplex\_evo-Core

R2-2505661 Remaining issues for Random Access in SBFD Operation Sony discussion Rel-19 NR\_duplex\_evo-Core

R2-2505666 SBFD RA remaining aspects Ericsson discussion Rel-19 NR\_duplex\_evo-Core

R2-2505751 Random Access Operation of SBFD Nokia discussion Rel-19 NR\_duplex\_evo-Core

R2-2505820 Views on random access for SBFD Qualcomm Incorporated discussion NR\_duplex\_evo-Core

R2-2505904 Remaining issues on RACH aspect in SBFD InterDigital, Inc. discussion Rel-19 NR\_duplex\_evo-Core

R2-2505929 Discussion on SBFD RA open issues Sharp discussion Rel-19 NR\_duplex\_evo-Core

R2-2505952 Discussion on random access in SBFD CMCC discussion Rel-19 NR\_duplex\_evo-Core

R2-2505982 Remaining issues on RACH procedure for SBFD vivo discussion Rel-19 NR\_duplex\_evo-Core

### 8.11.3 Other aspects

Other RAN2 impacts with SBFD if not covered by the previous agenda items.

RRC-7

R2-2505667 DC and CSI-RS measurements in SBFD Ericsson discussion Rel-19 NR\_duplex\_evo-Core

* ?? Noted

*Proposal 1 RAN2 to conclude that*

*a. Whether SBFD and DC can be supported is up to RAN4 decision*

*b. The issue doesn’t block the completion of the WI in RAN2*

*c. Further spec changes in RAN2 can be triggered based on RAN4 decision.*

*Chair: other issues can be discussed in CB session if time allows*

R2-2505090 Leftover Issues on other aspects in SBFD CATT discussion Rel-19 NR\_duplex\_evo-Core

R2-2505142 Other aspects of SBFD Xiaomi discussion Rel-19 NR\_duplex\_evo-Core

R2-2505366 Discussion on other aspects of SBFD Huawei, HiSilicon discussion Rel-19 NR\_duplex\_evo-Core

R2-2505592 Discussion on multi-carrier and measurements in SBFD ZTE Corporation discussion Rel-19 NR\_duplex\_evo-Core

R2-2505667 DC and CSI-RS measurements in SBFD Ericsson discussion Rel-19 NR\_duplex\_evo-Core

R2-2505821 Other aspects of SBFD Qualcomm Incorporated discussion NR\_duplex\_evo-Core

R2-2505905 Discussion on other aspect in SBFD InterDigital, Inc. discussion Rel-19 NR\_duplex\_evo-Core

R2-2505930 Discussion on SBFD other open issue Sharp discussion Rel-19 NR\_duplex\_evo-Core

R2-2505983 SBFD other aspects vivo discussion Rel-19 NR\_duplex\_evo-Core

R2-2506092 Other aspects of SBFD Nokia discussion Rel-19 NR\_duplex\_evo-Core Withdrawn

R2-2506131 Other Aspects of SBFD Nokia discussion Rel-19 NR\_duplex\_evo-Core

=> Revised in R2-2506166

R2-2506166 Other Aspects of SBFD Nokia discussion Rel-19 NR\_duplex\_evo-Core R2-2506131

## 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: 0.5 TU

Tdoc Limitation: 2 tdocs

### 8.12.1 Organizational

LSs and rapporteur input, including workplan, running CRs, email discussion summary, open issue list(s), etc.

LSin

R2-2505027 LS on Draft CR on TS38.300 for Rel-19 MIMO (R1-2505008; contact: Samsung) RAN1 LS in Rel-19 NR\_MIMO\_Ph5 To:RAN2

* ?? Noted

CRs

R2-2505423 Introduction of MIMO Samsung (Rapporteur) CR Rel-19 38.321 18.6.0 2100 - B NR\_MIMO\_Ph5-Core

R2-2505806 Introduction of MIMO Phase 5 Ericsson CR Rel-19 38.331 18.6.0 5441 - B NR\_MIMO\_Ph5-Core

R2-2505949 Running CR for Rel-19 MIMO Phase 5 CMCC CR Rel-19 38.300 18.6.0 1021 - B NR\_MIMO\_Ph5-Core

* ?? The above 3 CRs are taken as baseline for further updates and review

Work plan

R2-2505948 Work Plan for Rel-19 on NR MIMO Phase 5 CMCC, Samsung, MediaTek Work Plan Rel-19 NR\_MIMO\_Ph5-Core

* ?? Noted

Email discussion summary

R2-2505424 Report of MAC open issues for MIMO Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

* ?? Noted

Proposal for easy agreement:

*Proposal 1 (12/12): If the PUCCH of a UEI report configuration is pointed to a SCell whose TAT of the single sTAG is expired, this PUCCH for the SCell is released by RRC. If the type-1 CG of a UEI report configuration is pointed to a SCell whose TAT of the single sTAG is expired, this type-1 CG for the SCell is cleared as a configured UL grant. There is no MAC specification impact.*

*Proposal 4 (12/12): Regardless of whether the MAC entity is monitoring PDCCH or not on the Serving Cells in a DRX group, the MAC entity transmits mode-A UE-initiated CSI reporting on PUCCH and PUSCH on the Serving Cells in the DRX group when such is expected.*

*Proposal 5 (8/11): UE does not transmit PUCCH/PUSCH for mode-B if either PUCCH or PUSCH (first valid type-1 CG occasion) is outside DRX Active Time.*

*Proposal 6 (11/12): For mode-A UEI report, regarding monitoring PDCCH for DG in cell DTX, no enhancement is needed.*

*Proposal 7 (12/12): Regarding UEI report in cell DRX:*

*- If the PUSCH for mode-A UEI report is scheduled by NW, UE shall transmit regardless of cell DRX, no MAC spec. impact.*

*- UE does not transmit mode-A UEI report PUCCH outside cell DRX Active Period.*

*- UE does not transmit PUCCH/PUSCH for mode-B UEI report if either the PUCCH or PUSCH (first valid type-1 CG occasion) for a report is outside cell DRX Active Period.*

*Proposal 8 (12/12): sDCI mTRP 2TA (in case of no PL offset) is supported for legacy Rel-18 LTM cell switch with no MAC specification impact*.

R2-2505807 Open issues for MIMO on 38.331 Ericsson discussion

* ?? Noted

### 8.12.2 Asymmetric DL sTRP/UL mTRP

Remaining issues for asymmetric DL sTRP/UL mTRP

On RRC parameter for Rel-19 2TA

R2-2505425 RRC parameters for two-TA operation Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

* ?? Noted

*Proposal 1: RAN2 clarifies that the parameter that enables Rel-19 two-TA configuration (singleDCI-MultiTRP-2TA) is applied for both Rel-19 intra-cell 2TA and inter-cell 2TA for which mDCI mTRP is not configured. Update the field description to capture this and informs RAN1 by LS.*

R2-2505361 Discussion on Asymmetric DL sTRP UL mTRP CATT discussion Rel-19 NR\_MIMO\_Ph5-Core

* ?? Noted

*Proposal 1a (RRC, Issue-4): RAN2 to confirm the current RRC parameter singleDCI-MultiTRP-2TA can enable UE to configure either intra-cell or inter-cell sDCI mTRP with two-TA. No further RRC spec impact.*

*Proposal 1b (RRC, Issue-4): LS to RAN1 that RAN2 introduced a new RRC parameter singleDCI-MultiTRP-2TA per UL BWP to enable the UE configured with intra-cell or inter-cell sDCI mTRP with two-TA. Adopt Annex 1 for the draft LS.*

R2-2505585 Discussion on open issues for asymmetric DL sTRPUL mTRP vivo discussion Rel-19 NR\_MIMO\_Ph5-Core

* ?? Noted

*Proposal 1: (RRC-x) Two RRC parameter for Rel-19 sDCI-mTRP 2TA, e.g. singleDCI-MultiTRP-IntraCell2TA, and singleDCI-MultiTRP-InterCell2TA, are introduced in RAN2 to enable intra-cell and inter-cell 2TA, respectively.*

*Chair: other issues can be discussed in CB session if time allows*

R2-2505242 Clarification on the coexistence between LTM and UL-only TRP OPPO discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505267 Enhancements for Asymmetric DL sTRP and UL mTRP Ofinno discussion Rel-19

R2-2505361 Discussion on Asymmetric DL sTRP UL mTRP CATT discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505425 RRC parameters for two-TA operation Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505585 Discussion on open issues for asymmetric DL sTRPUL mTRP vivo discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505862 Asymmetric DL/UL mTRP impact from MIMO ph. 5 Ericsson discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505891 Remaining issues on Asymmetric DL sTRP/UL mTRP Huawei, HiSilicon discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505901 Remaining issues on asymmetric DL sTRP/UL mTRP Nokia discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505946 Discussion on Asymmetric DL sTRP/UL mTRP CMCC discussion Rel-19 NR\_MIMO\_Ph5-Core

### 8.12.3Others

Remaining issues for UE-initiated reporting, and other issues if not covered by the previous agenda items.

Open issue for UE-initiated beam report related to TAT expiry

R2-2505464 Discussion on UEI beam reporting impact LG Electronics Inc. discussion Rel-19 NR\_MIMO\_Ph5-Core

* ?? Noted

*Proposal 1. When UEIBR is initiated but TAT expires, UE does not initiate RACH as in legacy.*

*Proposal 2. When UEIBR is initiated but TAT expires, MAC indicates to cancel the triggered UEIBR to PHY layer.*

R2-2506035 Discussion on MAC open issues for MIMO phase 5 ASUSTeK discussion Rel-19 38.321 NR\_MIMO\_Ph5-Core

* ?? Noted

*Proposal 1: RAN2 to confirm that based on the current MAC spec, the UE releases PUCCH resources and clears type-1 CG PUSCH resources configured in a UEI report configuration of a SCell if the TAT of the sTAG of the SCell is expired, regardless of the Cell on which the PUCCH and PUSCH resources are configured.*

*Proposal 2: The UE initiates RACH when a UEI report is triggered but there is no PUCCH or type-1 CG for the triggered UEI report due to the associated TAT being expired, and UE indicates the cause of RACH via at least one of the following options:*

*- Option 1: explicit indication via a MAC CE in Msg3*

*- Option 2: implicit indication via a dedicated preamble configured for UEI report-initiated RACH.*

R2-2505850 Discussion on remaining issues for UE initiated beam report Qualcomm Incorporated discussion

* ?? Noted

*Proposal 2. For mode-A UEI report, if TAT is expired after transmitting PUCCH and before PUSCH for a triggered report, no enhancement is needed..*

Other proposals

R2-2505268 Enhancements for UE-initiated Beam Reporting Ofinno discussion Rel-19

* ?? Noted

*Proposal 1: Explicitly specify the RAN2 agreement: For Rel-15 UL skipping (skipUplinkTxDynamic is configured), same principle as legacy aperiodic CSI applies for multiplexing UCI of mode-A DG-based UE-initiated report in PUSCH.*

*Proposal 4: Regardless of cell DTX Active Period, the UE monitors PDCCH if PDCCH scheduling mode-A PUSCH has not been received after transmitting PUCCH for mode-A UEI beam report.*

R2-2505998 Consideration on the Remaining MAC Issues of UEIBM ZTE Corporation discussion Rel-19 NR\_MIMO\_Ph5-Core

* ?? Noted

*Proposal 1: RAN2 to confirm whether to further specify the broken R15 UL skipping function for the UEIBM.*

*Proposal 1a: No need to further specify the broken R15 UL skipping function for the UEIBM.*

R2-2505808 Remaining aspects from other NR MIMO Ph.5 objectives Ericsson discussion

* ?? Noted

*Proposal 2 Keep UEI report parameters within CSI-ReportConfig. No specification impact.*

*Proposal 3 referenceAntennaPort is defined with values 1, 2 and 4.*

*Chair: other issues can be discussed in CB session if time allows*

R2-2505241 Discussion on the remaining issues of UE-initiated beam report OPPO discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505268 Enhancements for UE-initiated Beam Reporting Ofinno discussion Rel-19

R2-2505362 Discussion on UE initiated beam reporting CATT discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505407 Discussion on MAC and RRC open issues for UEI BMR vivo discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505426 Open issues on UE-initiated CSI Reporting Samsung discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505464 Discussion on UEI beam reporting impact LG Electronics Inc. discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505484 Remaining issues of UE initiated beam reporting Apple discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505694 Remaining issues on UEI report Lenovo discussion Rel-19

R2-2505808 Remaining aspects from other NR MIMO Ph.5 objectives Ericsson discussion

R2-2505850 Discussion on remaining issues for UE initiated beam report Qualcomm Incorporated discussion

R2-2505892 UE-initiated/event-driven beam management Huawei, HiSilicon discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505902 Other MIMO issues Nokia discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505947 Discussion on other issues of NR MIMO Phase 5 CMCC discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505998 Consideration on the Remaining MAC Issues of UEIBM ZTE Corporation discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2505999 Consideration on the Remaining Asn.1 Issues ZTE Corporation discussion Rel-19 NR\_MIMO\_Ph5-Core

R2-2506034 Discussion on RRC impacts for MIMO phase 5 ASUSTeK discussion Rel-19 38.331 NR\_MIMO\_Ph5-Core

R2-2506035 Discussion on MAC open issues for MIMO phase 5 ASUSTeK discussion Rel-19 38.321 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

Signallig for 7Mhz Ch BW

R2-2505046 Reply LS to RAN2 on Signalling for 7 MHz Channel Bandwidth (R4-2508088; contact: T-Mobile) RAN4 LS in Rel-19 NR\_FR1\_7MHz\_BW-Core To:RAN2 Cc:RAN3

* ?? Noted

R2-2505903 Discussion on 7 MHz channel bandwidth capabilities Nokia discussion Rel-19 NR\_FR1\_7MHz\_BW-Core

R2-2506000 Consideration on the 7M Channel Bandwidth Reporting ZTE Corporation discussion Rel-19 NR\_FR1\_7MHz\_BW-Core

R2-2505384 Introduction of 7MHz channel bandwidth T-Mobile USA, Ericsson CR Rel-18 38.331 18.6.0 5308 1 A TEI18, NR\_FR1\_7MHz\_BW-Core R2-2502572

R2-2505386 Introduction of 7MHz channel bandwidth Ericsson, T-Mobile CR Rel-17 38.331 17.13.0 5307 1 B TEI17, NR\_FR1\_7MHz\_BW-Core R2-2502571

R2-2505387 Introduction of 7MHz channel bandwidth Ericsson, T-Mobile CR Rel-18 38.306 18.6.0 1258 1 A TEI18, NR\_FR1\_7MHz\_BW-Core R2-2502570

R2-2505388 Introduction of 7MHz channel bandwidth Ericsson, T-Mobile CR Rel-17 38.306 17.13.0 1257 1 B TEI17, NR\_FR1\_7MHz\_BW-Core R2-2502569

UE Signaling design for NR ATG enh

R2-2505048 LS on UE signaling design for NR ATG enh (R4-2508329; contact: CMCC) RAN4 LS in Rel-19 NR\_ATG\_enh To:RAN2

* ?? Noted

R2-2505761 Discussion on ATG LS Ericsson discussion Rel-19 NR\_ATG\_enh-Core

R2-2505961 Discussion on RAN4 LS on UE signaling design for NR ATG enh CMCC discussion Rel-19 NR\_ATG\_enh

On Rx BSF opt.

R2-2505205 Introduction of Rx BSF optimization for NR RRM Ph5 CATT, Ericsson, Apple, ZTE Corporation draftCR Rel-19 38.331 18.6.0 B NR\_RRM\_Ph5-Core

R2-2506093 Fast Beam Sweeping Factor Nokia discussion Rel-19 NR\_RRM\_Ph5-Core

On CSSF optimization

R2-2505485 Introduction of CSSF optimization for NR RRM Ph5 (Alt1) Apple CR Rel-19 38.331 18.6.0 5419 - B NR\_RRM\_Ph5-Core

R2-2505486 Introduction of CSSF optimization for NR RRM Ph5 (Alt2) Apple CR Rel-19 38.331 18.6.0 5420 - B NR\_RRM\_Ph5-Core

UE capability on 6 DL MIMO layers

R2-2505303 Discussion on DL MIMO layer capability for 6Rx UE Xiaomi, Intel Corporation, Oppo, Ericsson, Nokia, Qualcomm Incorporated, ZTE, Sanechips, CATT, T-mobile USA, CHTTL discussion Rel-19 NR\_ENDC\_RF\_Ph4 R2-2503446

R2-2505610 Introduction of 6 DL MIMO layer Xiaomi, Intel Corporation, Oppo, Ericsson, Nokia, Qualcomm Incorporated, ZTE, Sanechips, CATT, T-mobile USA, CHTTL draftCR Rel-19 38.306 18.6.0 B NR\_ENDC\_RF\_Ph4 R2-2503447

R2-2505611 Introduction of 6 DL MIMO layer Xiaomi, Intel Corporation, Oppo, Ericsson, Nokia, Qualcomm Incorporated, ZTE, Sanechips, CATT, T-mobile USA, CHTTL draftCR Rel-19 38.331 18.6.0 B NR\_ENDC\_RF\_Ph4 R2-2503448

R2-2506187 Introduction of UE capability on 6 DL MIMO layers Huawei, HiSilicon, Samsung, MediaTek Inc., Apple draftCR Rel-19 38.331 18.6.0 B NR\_ENDC\_RF\_Ph4

R2-2506188 Introduction of UE capability on 6 DL MIMO layers Huawei, HiSilicon, Samsung, MediaTek Inc., Apple draftCR Rel-19 38.306 18.6.0 B NR\_ENDC\_RF\_Ph4

R2-2505304 Introduction of 6 DL MIMO layer Xiaomi CR Rel-19 38.306 18.6.0 1320 - B NR\_ENDC\_RF\_Ph4 R2-2503447 Withdrawn

R2-2505305 Introduction of 6 DL MIMO layer Xiaomi CR Rel-19 38.331 18.6.0 5402 - B NR\_ENDC\_RF\_Ph4 R2-2503448 Withdrawn

R2-2506110 Introduction of UE capability on 6 DL MIMO layers Huawei, HiSilicon, Samsung, MediaTek Inc., Apple CR Rel-19 38.331 18.6.0 5458 - B NR\_ENDC\_RF\_Ph4 Withdrawn

R2-2506111 Introduction of UE capability on 6 DL MIMO layers Huawei, HiSilicon, Samsung, MediaTek Inc., Apple CR Rel-19 38.306 18.6.0 1341 - B NR\_ENDC\_RF\_Ph4 Withdrawn

Simultaneous Rx-Tx capability for TDD-SDL band combination

R2-2505622 Corrections on simultaneous Rx-Tx capability for TDD-SDL band combination Huawei, HiSilicon, Ericsson CR Rel-15 38.306 15.28.0 1310 1 F LTE\_NR\_R19\_Simult\_RxTx R2-2504734

R2-2505623 Corrections on simultaneous Rx-Tx capability for TDD-SDL band combination Huawei, HiSilicon, Ericsson CR Rel-16 38.306 16.21.0 1311 1 A LTE\_NR\_R19\_Simult\_RxTx R2-2504735

R2-2505624 Corrections on simultaneous Rx-Tx capability for TDD-SDL band combination Huawei, HiSilicon, Ericsson CR Rel-17 38.306 17.13.0 1312 1 A LTE\_NR\_R19\_Simult\_RxTx R2-2504736

R2-2505625 Corrections on simultaneous Rx-Tx capability for TDD-SDL band combination Huawei, HiSilicon, Ericsson CR Rel-18 38.306 18.6.0 1313 1 A LTE\_NR\_R19\_Simult\_RxTx R2-2504737

Signaling support for intra-band non-collocated EN-DC/NR-CA

R2-2506002 Introduction of signaling support for intra-band non-collocated EN-DC/NR-CA deployment Phase 2: new receiver type(s) KDDI, OPPO, Apple, Ericsson, Huawei, HiSilicon, ZTE, Qualcomm Incorporated, Samsung draftCR Rel-19 38.331 18.6.0 NonCol\_intraB\_ENDC\_NR\_CA\_Ph2-Core

R2-2506003 Introduction of signaling support for intra-band non-collocated EN-DC/NR-CA deployment Phase 2: new receiver type(s) KDDI, OPPO, Apple, Ericsson, Huawei, HiSilicon, ZTE, Qualcomm Incorporated, Samsung draftCR Rel-19 38.306 18.6.0 NonCol\_intraB\_ENDC\_NR\_CA\_Ph2-Core

R2-2506009 Introduction of signaling support for intra-band non-collocated EN-DC/NR-CA deployment Phase 2: new receiver type(s) KDDI, OPPO, Apple, Ericsson, Huawei, HiSilicon, ZTE, Qualcomm Incorporated, Samsung draftCR Rel-19 38.331 18.6.0 NonCol\_intraB\_ENDC\_NR\_CA\_Ph2-Core

### 8.20.2 Other WGs

On low NR band CA via switching

R2-2505017 LS on Low NR band carrier aggregation via switching (R1-2504869; conact: Apple) RAN1 LS in Rel-19 NR\_LBCA\_Sw To:RAN2, RAN4

* ?? Noted

R2-2505487 Introduction of low NR band carrier aggregation via switching Apple, Telus, Nokia CR Rel-19 38.331 18.6.0 5421 - B NR\_LBCA\_Sw

R2-2505488 Introduction of low NR band carrier aggregation via switching Apple, Telus, Nokia (Rapporteur) CR Rel-19 38.300 18.6.0 1012 - B NR\_LBCA\_Sw

Multi-carrier enh.

R2-2505016 LS on TS38.300 TP for Multi-carrier enhancements in Rel-19 (R1-2504861; contact: Lenovo) RAN1 LS in Rel-19 NR\_MC\_enh2 To:RAN2

* ?? Noted

R2-2505251 Stage 2 CR for Rel-19 Multi-carrier enhancements Lenovo CR Rel-19 38.300 18.6.0 1005 - B NR\_MC\_enh2

R2-2505252 Introduction of Rel-19 Multi-carrier enhancements Lenovo CR Rel-19 38.331 18.6.0 5400 - B NR\_MC\_enh2

Number of UEs in RRC\_INACTIVE state with data transmission

R2-2505292 Introduction of number of UEs in RRC\_INACTIVE state with data transmission China Telecom, Huawei, HiSilicon, ZTE Corporation, Sanechips, CATT, Ericsson, Nokia CR Rel-19 38.314 18.0.0 0034 4 B PM\_KPI\_5G\_Ph4 R2-2504742

*The following contributions will be handled in other session.*

R2-2505068 LS on the RAN simulation assumptions for ULBC (S4-251584; contact: Qualcomm) SA4 LS in Rel-20 FS\_ULBC To:RAN1, RAN2, RAN4, SA2, CT1 Cc:SA1

R2-2505077 Discussion on SA4 LS regarding RAN Simulation Assumptions for ULBC vivo discussion Rel-20 FS\_ULBC

R2-2505428 Reply LS on the RAN simulation assumptions for ULBC Qualcomm Technologies Ireland LS out Rel-20 FS\_ULBC SA4 SA2, CT1, RAN1

R2-2505601 Response to SA4 LS on the RAN simulation assumptions for ULBC ZTE Corporation, Sanechips discussion Rel-20 FS\_ULBC

R2-2506125 Draft Reply LS on the RAN Simulation Assumptions for ULBC vivo LS out Rel-20 FS\_ULBC SA4, SA2 RAN1, CT1

## List of post meeting email discussions

*Template (will be deleted in the final report)*

* [AT131][20x][MIMOevo/LPWUS/SBFD/MIMO\_Ph5/NR\_Others] Proposals for xxxxx (xxxx)

Scope: xxx

 Intended outcome: Summary/Proposals in R2-25xxxxx for xxxx.

 Deadline: xxx

* [Post131][20x][MIMOevo/LPWUS/SBFD/MIMO\_Ph5/NR\_Others] xxxxx (xxxx)

Scope: xxx

Intended outcome: Summary/Proposals for xxxx, agreeable CR

Deadline: xxx