3GPP TSG-RAN WG2 Meeting #131 DRAFT\_R2-2506205

Bangalore, India, August 25th – 29th, 2025

Source: Session Chair (Huawei)

Title: Report from session on R19 XR and LTE Broadcast

## List of AT-meeting offline discussions

* [AT131][500][XR] Organizational – Session on R19 XR and LTE Broadcast (Session chair)

Scope:

* + - * Share plans and list of ongoing email discussions for the session
      * Share meeting notes and agreements for review and endorsement

## 2.4 Instructions

CRs

* Use latest CR template version 12.3 for all CRs submitted to RAN2 meeting

Rel-18 and earlier maintenance CRs

* Only essential/critical corrections are expected
* Editorial and clarification corrections should be sent to be reviewed and approved by spec rapporteurs prior to submission.
* Editorials corrections should be collected and submitted by spec rapporteurs.
* NOTE: the tdoc limit applies to all CRs (i.e. WI spec rapporteurs are NO longer expected to submit individual contributions). They can submit a company CR where they also include miscellaneous corrections that have been sent to them.

Rel-18 UE capabilities

- EUTRA UE capabilities corrections are covered by separate CRs

- RAN1/RAN4 NR UE capabilities (new) and corrections are covered in Rel-18 common MegaCRs (38306 and 38331) covering all rel-18 WIs (end outcome).

- UE capabilities in LPP 37355 and SLPP 38355 are covered in the main CRs for the Positioning WI.

Tdoc limitations

Tdoc limitations doesn’t apply to Rapporteur Input, i.e.

- Assigned summary rapporteur input of the summary.

- Email / offline discussions outcomes by discussion rapporteur,

- Limit of 1 WI/SI rapporteurs input for WI planning. The work plan is not expected to be updated/submitted every meeting, unless needed. It can include progress of other WG groups in the same Tdoc (i.e. separate Tdocs on other WG agreements are not required).

- TS rapporteur input for TS maintenance.

- Contact Company of a LSin that triggers RAN2 action may submit one tdoc to facilitate the LS reply. This only applies to one of the contact companies in case there are several (default the first).

Tdoc limitations doesn’t apply to Input created at the meeting, revisions, assigned documents etc.

Tdoc limitations doesn’t apply to shadow / mirror CRs (Cat A), or In-Principle Agreed CRs.

Tdoc limitations applies to all other submitted tdocs (e.g. discussion tdoc and CR tdoc are counted as two).

Postponed CRs still count towards tdoc limit unless 3 or more companies are co-sourcing it.

For each R19 feature, 1 additional tdoc on top of the limit is allowed for a primary co-sourcing company for co-sourced contribution with 4 or more companies.

**Open issues**

* CR Rapporteurs (as indicated in email discussion scope) are expected to provide open issue list
* Please refer to RAN2 chair guidance document in [POST129bis][001][Organizational] Open issue list.
* CR rapporteurs are expected to ask for inputs, provide proposals on how to resolve the issues or provide limited options to resolve the issue for further discussion online.
* For each issue (before the email discussion deadline), rapporteurs are requested to explicitly indicate whether further contribution input on the open issue is needed. Input should be requested only for difficult to resolve issues and/or new open issues for which there wasn’t sufficient discussion time to resolve it.
* Companies should follow rapporteurs guidance (i.e. only address open issues for which the rapporteur indicates further input is needed).
* Companies should clearly indicate the open issue number they are addressing in their section and proposal, e.g. Proposal x: (RRC-1) Agree to bla bla
* Companies can discuss UE capabilities in their topic-specific Tdocs

**Rel-19 CRs**

* CR already agreed in principle but not yet officially agreed must be submitted to RAN2#131 for formal approval under in-principle agreed CRs AIs
* All Rel-19 WI CRs for approval to RAN#109 should be submitted as real CRs to this meeting (i.e. no draftCRs). All WI CR rapporteurs should ensure that the CRs resulting from post email discussions are submitted as real CRs from beginning of the meeting.
* All Rel-19 CRs should be based on the latest the June version of the specs
* All CRs should follow the CR and formatting rules.

Rel-19 UE capabilities

- EUTRA UE capabilities are covered by separate CRs

- All NR UE capabilities will be included common Mega CRs (38306 and 38331) covering all Rel-19 WIs (end outcome).

During the work on NR UE caps:

- In a Common Rel-19 Agenda Item (AI): RAN1 and RAN4 feature corrections are handled jointly under a common AI, with some explicit exceptions. UE capabilities will be included in UE cap MegaCR directly from UE capability rapporteur

- In WI-specific Rel-19 Agenda Items: RAN2 specific UE capabilities are handled per WI and endorsed as individual CRs. Final endorsed CRs will be merged into mega CR post meeting.

Tdoc request/submission for RAN2#131 deadlines:

* Tdoc Submission deadline: August 15th, 1000 UTC

# 7 Rel-18

## 7.0 Common

Rel-18 WIs not covered under an explicit AI in 7.x. Multi-WI Rel-18 items, e.g. cross-WI-issues not handled under another WI. UE capabilities.

#### 7.0.2.16 XR Enhancements for NR

(NR\_XR\_enh-Core; leading WG: RAN2; REL-18; WID: [RP-230786](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_99/Docs/RP-230786.zip))

[R2-2505408](file:///D:\3GPP\Extracts\R2-2505408_Correction%20on%20DSR%20triggering.docx) Correction on DSR triggering vivo CR Rel-18 38.321 18.6.0 2099 - F NR\_XR\_enh-Core

* Not pursued [CB Thursday]
* Xiaomi does not see strong need to change. It is an optimization. LGE agrees.
* Nokia thinks this makes sense.
* LGE thinks this would require to also change DSR cancellation condition. We can leave as is.
* Samsung agrees with LGE and Xiaomi. Network knows about the segment so will schedule the transmission.
* Ericsson does not think we need a change.
* Sharp agrees that an issue can happen.

# 8 Rel-19

## 8.7 XR Enhancements Ph3

(NR\_XR\_Ph3-Core; leading WG: RAN2; REL-19; WID: RP-250107)

Time budget: 2 TU

Tdoc Limitation: 3 tdocs

### 8.7.1 Organizational

LS, rapporteur input, workplan, running CRs, open issues lists etc.

**Incoming LS**

[R2-2505039](file:///D:\3GPP\Extracts\R2-2505039_R3-253927.doc) LS on uplink rate control (R3-253927; contact: Nokia) RAN3 LS in Rel-19 NR\_XR\_Ph3-Core To:RAN2

* Noted

[R2-2505047](file:///D:\3GPP\Extracts\R2-2505047_R4-2508312.docx) LS on UE assistance information (R4-2508312; contact: Nokia) RAN4 LS in Rel-19 NR\_XR\_Ph3-Core To:RAN2 Cc:RAN1

* Noted

[R2-2505061](file:///D:\3GPP\Extracts\R2-2505061_S2-2505975.docx) Reply LS on RTP retransmission (S2-2505975; contact: InterDigital) SA2 LS in Rel-19 5G\_RTP\_Ph2, XRM\_Ph2 To:SA4 Cc:RAN2

* Noted

**Running CRs**

[R2-2505069](file:///D:\3GPP\Extracts\R2-2505069%20R19%20XR%20MAC%20running%20CR.docx) Introduction of XR enhancements Qualcomm Incorporated CR Rel-19 38.321 18.6.0 2102 - B NR\_XR\_Ph3-Core

[R2-2505119](file:///D:\3GPP\Extracts\R2-2505119%20Introduction%20of%20R19%20XR%20enhancements%20for%20RRC%20spec.docx) Introduction of R19 XR enhancements for RRC spec Huawei, HiSilicon CR Rel-19 38.331 18.6.0 5395 - B NR\_XR\_Ph3-Core

[R2-2505136](file:///D:\3GPP\Extracts\R2-2505136.docx) Draft 38.306 CR for Rel-19 XR UE capabilities Xiaomi draftCR Rel-19 38.306 18.6.0 B NR\_XR\_Ph3-Core

[R2-2505137](file:///D:\3GPP\Extracts\R2-2505137.docx) Draft 38.331 CR for Rel-19 XR UE capabilities Xiaomi draftCR Rel-19 38.331 18.6.0 B NR\_XR\_Ph3-Core

[R2-2505279](file:///D:\3GPP\Extracts\R2-2505279%20XR%20Stage%202%20CR%20Rel-19.docx) Introduction of XR Enhancements Phase 3 Nokia CR Rel-19 38.300 18.6.0 1007 - B NR\_XR\_Ph3-Core

[R2-2505402](file:///D:\3GPP\Extracts\R2-2505402_Introduction%20of%20R19%20XR%20enhancements%20for%20RLC%20spec..docx) Introduction of R19 XR enhancements for RLC spec. vivo CR Rel-19 38.322 18.2.0 0065 - B NR\_XR\_Ph3-Core

[R2-2505438](file:///D:\3GPP\Extracts\R2-2505438%20Introduction%20of%20R19%20XR%20enhancements%20for%20PDCP%20spec.docx) Introduction of R19 XR enhancements for PDCP spec. LG Electronics Inc. CR Rel-19 38.323 18.5.0 0149 - B NR\_XR\_Ph3-Core

* All above are endorsed

**Open issue lists**

[R2-2505070](file:///D:\3GPP\Extracts\R2-2505070%20List%20of%20open%20issues%20in%20MAC.docx) List of open issues in MAC Qualcomm Incorporated discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505138](file:///D:\3GPP\Extracts\R2-2505138.docx) Open issues of Rel-19 XR UE capabilities Xiaomi discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505403](file:///D:\3GPP\Extracts\R2-2505403_Summary%20of%20RLC%20open%20issue%20list%20for%20R19%20XR.docx) Summary of RLC open issue list for R19 XR vivo discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505439](file:///D:\3GPP\Extracts\R2-2505439%20Summary%20of%20%5bPOST130%5d%5b507%5d%5bXR%5d%20PDCP%20running%20CR%20and%20open%20issues%20(LGE).docx) Summary of [POST130][507][XR] PDCP running CR and open issues (LGE) LG Electronics Inc. (Rapporteur) discussion Rel-19 NR\_XR\_Ph3-Core

* All above are noted
* Open issues discussed based on company Tdocs

[R2-2505120](file:///D:\3GPP\Extracts\R2-2505120%20Summary%20of%20%5bPOST130%5d%5b506%5d%5bXR%5d%20RRC%20running%20CR%20(Huawei).docx) Summary of [POST130][506][XR] RRC running CR (Huawei) Huawei, HiSilicon discussion Rel-19 NR\_XR\_Ph3-Core

The following proposals should be potentially easy to agree

Proposal2: Prohibit timer configuration for UAI for gap cancellation ratio preference is released at the initiation of RRC re-establishment or RRC resume procedure or at the cell selection during RRC re-establishment. (14 out of 14)

Propsoal3: The prohibit timer for the preference for gap occasion cancellation ratio is (14 out of 14)

 started when UAI carrying the field gapOccasionCancelRatio is transmitted

 stopped when releasing the GapOccasionPreferenceReportConfig when

 connection reestablishment/resume procedure is initiated or cell reselection happens during reestablishment

 GapOccasionPreferenceReportConfig is set to release

Proposal4: the following candidate values { s0, s0dot5, s1, s2, s5, s10, s20, s30,s60, s90, s120, s300, s600, spare3, spare2, spare1} can be reused for the prohibit timer for preference of gap occasion cancellation ratio. (14 out of 14)

Proposal5: For UL data rate query, the value of prohibit timer is the same for all flows. (10 out of 14)

Proposal6a: The candidate values for the UL available data rate query prohibit timer can be { s0, s0dot4, s1dot6, s0dot8, s3, s6, s12, s30} (14 out of 14)

The following proposal need further discussion:

Proposal1: For UAI for reporting preference for gap cancellation ratio, when multiple gap configurations are provided, a single timer is maintained for all the gap configurations. (9 out of 14)

Proposal6b: RAN2 to further discuss whether the two values { s0dot1, s0dot2}should be added to the candidate values for ul data rate query prohibit timer.

Proposal7: mg-CancellationDCI-0-3/1-3 is configured per BWP. (6 out of 14)

Open issue list

The following potential issues could be addressed from RRC point of view

RRC-1: FFS whether UAI for gap cancellation ratio preference can be reported to SN

Discussion on P1:

* QCM think per MG configuration timer makes more sense as these usually are for different frequencies which have different mobility characteristics.
* Xiaomi share the view with Qualcomm. There will be a few MG configs anyway, so finer granularity should be OK.
* Nokia thinks that multiple timers may cause UE to send UAI more often. Network can adjust the timer accordingly.

DISCUSSION on P6b:

* QCM sees value in having additional values.

DISCUSSION on P7:

* Huawei thinks that if we configure this per BWP, then it may be complex UE behavior. Should be per serving cell.
* QCM thinks if the issue for multi-carrier scheduling, then they do not see the difference between per BWP and per serving cell.
* Ofinno thinks the main difference is where we configure this. Wonders if we would have to align other formats.
* Huawei would not like to re-discuss other formats, they can stay per BWP. It will be simpler form configuration point of view if it is per serving cell.
* OPPO thinks that in case of per BWP configuration we need a new DCI format.
* QCM thinks this should be discussed in RAN1.
* Nokia thinks this is mainly signalling optimization, so we can stick to per BWP.
* Nokia asks why this is under PDSCH and not PDCCH configuration? Huawei clarifies that this follows legacy configuration.
* Samsung also thinks we should ask RAN1 to decide.

DISCUSSION on RRC-1:

* Ericsson thinks DC is not in the scope, so why do we need this proposal?
* Huawei thinks we can add a clarification in RRC that UE should not send this to SN.
* Xiaomi thinks R4 LS referred only to EN-DC and NE-DC, but NR-DC might be in the scope.
* Nokia does not think any special handling is needed.
* Lenovo wonders whether SN can send skipping DCI?
* Ericsson does not think we need anything as this will only be configured by MN.
* Prohibit timer configuration for UAI for gap cancellation ratio preference is released at the initiation of RRC re-establishment or RRC resume procedure or at the cell selection during RRC re-establishment. (14 out of 14)
* The prohibit timer for the preference for gap occasion cancellation ratio is (14 out of 14)
  + - started when UAI carrying the field gapOccasionCancelRatio is transmitted
    - stopped when releasing the GapOccasionPreferenceReportConfig when
      * connection reestablishment/resume procedure is initiated or cell reselection happens during reestablishment
      * GapOccasionPreferenceReportConfig is set to release
* the following candidate values { s0, s0dot5, s1, s2, s5, s10, s20, s30,s60, s90, s120, s300, s600, spare3, spare2, spare1} can be reused for the prohibit timer for preference of gap occasion cancellation ratio. (14 out of 14)
* For UL data rate query, the value of prohibit timer is the same for all flows. (10 out of 14)
* The candidate values for the UL available data rate query prohibit timer can be { s0, s0dot4, s1dot6, s0dot8, s3, s6, s12, s30} (14 out of 14)
* For UAI for reporting preference for gap cancellation ratio, when multiple gap configurations are provided, a single timer is maintained for all the gap configurations. (9 out of 14)
* two values { s0dot1, s0dot2} should be added to the candidate values for ul data rate query prohibit timer.
* LS to RAN1:
  + - Clarifying that RAN2 thinks granularity of this configuration is in the expertise of RAN1
    - Asking whether mg-CancellationDCI-0-3/1-3 is configured per BWP or per serving cell
    - Asking why this configuration is under PDSCH/PUSCH and not under PDCCH for other DCI formats
* [CB Thursday] If we need to capture anything on NR-DC, e.g. some configuration limitation or whether UAI with meas gap skipping info can be sent to SN
* [AT131][501][XR] LS to RAN1 on measurement gap skipping (Huawei)

Scope: LS as per agreements

Intended outcome: Agreeable LS

Deadline: Wednesday 2025-08-27, 11:00

**Rapporteur inputs / work plan**

[R2-2505329](file:///D:\3GPP\Extracts\R2-2505329%20XR%20Rapporteur%20Inputs.docx) Rapporteur Inputs Nokia, Qualcomm (Rapporteurs) discussion Rel-19 NR\_XR\_Ph3-Core

### 8.7.2 Multi-modality support

**No contributions are expected for this AI**

### 8.7.3 RRM measurement gaps/restrictions related enhancements

Remaining issues for this AI are expected to be covered by [POST130][506][XR] RRC running CR (Huawei) and no contributions are expected.

[R2-2505658](file:///D:\3GPP\Extracts\R2-2505658_XRMeas_Final.docx) UE Assistance Information (UAI) for recommended gap cancellation ratio Sony discussion Rel-19 NR\_XR\_Ph3

[R2-2505975](file:///D:\3GPP\Extracts\R2-2505975_Discussion%20on%20UAI%20and%20Measurement%20Gaps.docx) Discussion on UAI and Measurement Gaps ETRI discussion Rel-19

### 8.7.4 Scheduling enhancements

Remaining open issues related to LCP and DSR enhancements.

**MAC-1 (DSR cancellation with no delay-critical data)**

[R2-2505260](file:///D:\3GPP\Extracts\R2-2505260.docx) Scheduling Enhancements for XR Ofinno discussion Rel-19

Proposal 1 [MAC-1] For the cancellation of a pending DSR, if at least one LCG is configured with dsr-ReportingThresList (i.e., Multiple Entry DSR MAC CE is enabled), a delay-reporting PDCP SDU is considered to be associated with the DSR (if it is associated with the LCH which triggered the DSR and it has not been transmitted in any MAC PDU).

[R2-2505071](file:///D:\3GPP\Extracts\R2-2505071%20Discussion%20on%20remaining%20issues%20on%20DSR%20enhancements.docx) Discussion on DSR enhancements Qualcomm Incorporated discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 1. [MAC-1] Keep the current agreement that a pending DSR is canceled once the UE no longer has delay critical SDUs or all delay critical SDUs have been reported. No additional conditions are needed.

**MAC-2 (BSR cancellation)**

[R2-2505260](file:///D:\3GPP\Extracts\R2-2505260.docx) Scheduling Enhancements for XR Ofinno discussion Rel-19

Proposal 2 [MAC-2] Cancellation of pending BSR is decoupled from DSR (i.e., no specification impact)

[R2-2505678](file:///D:\3GPP\Extracts\R2-2505678%20Discussion%20on%20open%20issues%20for%20scheduling%20enhancements.docx) Discussion on open issues for scheduling enhancements Samsung discussion Rel-19

[MAC-2] Proposal 5: All the pending BSRs should be cancelled if all the data eligible for inclusion in a BSR MAC CE is reported in a DSR MAC CE.

[R2-2505071](file:///D:\3GPP\Extracts\R2-2505071%20Discussion%20on%20remaining%20issues%20on%20DSR%20enhancements.docx) Discussion on DSR enhancements Qualcomm Incorporated discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 2. [MAC-2] It is up to UE implementation whether to cancel a BSR when all the buffer status up to the last event that triggered the BSR is reported by a DSR MAC CE.

**MAC-6 (DSR cancellation in DC)**

[R2-2505290](file:///D:\3GPP\Extracts\R2-2505290%20Remaining%20issues%20on%20scheduling%20enhancement.doc) Remaining issues on scheduling enhancement Xiaomi Communications discussion

Proposal 4 [MAC-6] RAN2 to confirm the previous agreement: “if MAC PDU is sent in one MAC entity, then the other MAC entity will see that there is no PDCP SDU associated with DSR and will cancel the DSR.” No spec impacts.

[R2-2505756](file:///D:\3GPP\Extracts\R2-2505756%20Remaining%20issues%20on%20LCP%20and%20DSR%20enhancements.docx) Remaining issues on LCP and DSR enhancements Huawei, HiSilicon discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 2: [MAC-6] In Dual Connectivity case, for completeness in the spec and aligning with the understanding from the RAN2 agreement ‘MAC entity will see that there is no PDCP SDU associated with DSR and will cancel the DSR’, add in procedure text or as a note that ‘a MAC entity can cancel the pending DSR if the volume of delay-critical data associated with the DSR is zero even though no MAC PDU including PDCP SDUs associated with the DSR was transmitted’.

**UE capability-1 (R18 and R19 DSR)**

[R2-2505290](file:///D:\3GPP\Extracts\R2-2505290%20Remaining%20issues%20on%20scheduling%20enhancement.doc) Remaining issues on scheduling enhancement Xiaomi Communications discussion

Proposal 5 [UE capability-01] A UE supporting Rel-19 enhance DRS shall also indicate support of delayStatusReport-r18.

[R2-2505274](file:///D:\3GPP\Extracts\R2-2505274%20-%20Discussion%20on%20scheduling%20enhancement%20for%20XR.docx) Discussion on scheduling enhancement for XR OPPO discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 2 [UE Cap-1] From UE capability signalling perspective, no need to have the pre-requisite for the capability of Rel-19 DSR.

**RLC-13 (Delay-reporting data visibility in RLC)**

[R2-2505273](file:///D:\3GPP\Extracts\R2-2505273%20Removing%20Non-delay-reporting%20RLC%20SDU%20from%20RLC%20specification.docx) Removing Non-delay-reporting RLC SDU from RLC specification Sharp, Ericsson discussion

Proposal 1 (RLC-13) If dsr-ReportNonDelayCriticalData is configured, PDCP indicates non-delay reporting PDCP PDUs associated with the i:th dsr-ReportingThreshold as the delay-reporting RLC SDUs associated with the i-th dsr-ReportingThreshold.

Proposal 2 (RLC-13) Remove all the description related to non-delay reporting RLC SDU from RLC specification.

[R2-2505372](file:///D:\3GPP\Extracts\R2-2505372_SchedulingEnh.docx) Scheduling enhancements for XR ZTE Corporation, Sanechips discussion

Proposal 1a(RLC-13): The delay-reporting or non-delay-reporting information is visible to RLC.

Proposal 1b(RLC-13): For both DSR and LCP procedure, the interaction between various protocol layers can be left to UE implementation.

**PDCP-1 (Delay-reporting PDCP SDU text placement)**

[R2-2505372](file:///D:\3GPP\Extracts\R2-2505372_SchedulingEnh.docx) Scheduling enhancements for XR ZTE Corporation, Sanechips discussion

Proposal 5 (PDCP-1): The text “and are not considered as delay-reporting PDCP data volume associated with any of the k:th dsr-ReportingThreshold where k < i” should be moved to the definition section for both delay-reporting PDCP SDU and non-delay-reporting PDCP SDU.

[R2-2505458](file:///D:\3GPP\Extracts\R2-2505458%20Remaining%20issues%20on%20scheduling%20enhancement%20for%20XR.docx) Remaining issues on scheduling enhancement for XR LG Electronics Inc. discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 6. [PDCP-1] Keep the current definition of delay-reporting PDCP SDU and non-delay-reporting PDCP SDU.

[R2-2505171](file:///D:\3GPP\Extracts\R2-2505171%20Consideration%20on%20Scheduling%20Enhancement.docx) Consideration on Scheduling Enhancement CATT discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505272](file:///D:\3GPP\Extracts\R2-2505272%20Scheduling%20Enhancements.docx) Leftover issues on scheduling enhancements Sharp discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505372](file:///D:\3GPP\Extracts\R2-2505372_SchedulingEnh.docx) Scheduling enhancements for XR ZTE Corporation, Sanechips discussion

[R2-2505404](file:///D:\3GPP\Extracts\R2-2505404_Remaining%20issues%20on%20DSR%20enhancements%20for%20XR.docx) Remaining issues on DSR enhancements for XR vivo discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505444](file:///D:\3GPP\Extracts\R2-2505444%20Remaining%20Issues%20of%20DSR%20Enhancements%20for%20Rel-19%20XR.docx) Remaining Issues of DSR Enhancements for Rel-19 XR Apple discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505547](file:///D:\3GPP\Extracts\R2-2505547%20Scheduling%20enhancements.docx) Scheduling Enhancements for XR Nokia, Nokia Shanghai Bell discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505619](file:///D:\3GPP\Extracts\R2-2505619_Remaining%20Issues%20on%20DSR%20Enhancements.docx) Remaining Issues on DSR enhancements ETRI discussion Rel-19

[R2-2505638](file:///D:\3GPP\Extracts\R2-2505638_Remaining%20issues%20on%20LCP%20and%20DSR.docx) Remaining issues on LCP and DSR NEC discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505646](file:///D:\3GPP\Extracts\R2-2505646%20(R19%20NR%20XR%20AI874)%20Remaining%20open%20issues%20of%20DSR%20enhancements.docx) Remaining open issues of DSR enhancements InterDigital discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505970](file:///D:\3GPP\Extracts\R2-2505970.docx) Remaining open issues on scheduling enhancement for XR CMCC discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2506067](file:///D:\3GPP\Extracts\R2-2506067%20Discussion%20on%20DSR%20enhancements.docx) Discussion on DSR enhancements HONOR discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2506115](file:///D:\3GPP\Extracts\R2-2506115.docx) Discussion on XR DSR enhancements III discussion

[R2-2506148](file:///D:\3GPP\Extracts\R2-2506148%20-%20Discussion%20on%20DSR%20enhancements.docx) Discussion on DSR enhancements Ericsson discussion Rel-19 NR\_XR\_Ph3-Core

### 8.7.5 RLC enhancements

Remaining open issues related to RLC enhancements.

**RLC-10 (Config restrictions for stopReTxObsoleteSDU and DL t-RxDiscard)**

[R2-2505172](file:///D:\3GPP\Extracts\R2-2505172%20Remaining%20issues%20on%20XR-specific%20RLC%20Enhancement.docx) Remaining issues on XR-specific RLC Enhancement CATT discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 2: (RLC-10) Add RRC configuration guidance for the stopReTxDiscardedSDU and t-RxDiscard, i.e., stopReTxDiscardedSDU and t-RxDiscard are configured together.

Proposal 3: (RLC-10) Besides RRC configuration guidance, capture in stage-2 that this is a “combined” approach for unnecessary retransmission avoidance.

[R2-2506001](file:///D:\3GPP\Extracts\R2-2506001.docx) Discussion on RLC enhancements DENSO CORPORATION discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 1: (RLC-10) There is no need to introduce limitations or associations for the configuration of UL stopReTxObsoleteSDU and DL t-RxDiscard. This can be left to network implementation.

**RLC-11 (No SDU to transmit the poll with when tPollRetransmit expires)**

[R2-2506001](file:///D:\3GPP\Extracts\R2-2506001.docx) Discussion on RLC enhancements DENSO CORPORATION discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 2: (RLC-11) The window stalling issue with polling retransmission should be addressed, i.e., UE needs to retransmit a poll with a SDU upon the expiry of t-PollRetransmit, even if the SDU has been indicated as discarded.

Proposal 3: (RLC-11) For the window stalling issue with polling retransmission, RAN2 can keep the current Rel-18 specification related to expiry of t-PollRetransmit unchanged.

[R2-2505445](file:///D:\3GPP\Extracts\R2-2505445%20Remaining%20Issues%20of%20RLC-AM%20Enhancements%20for%20Rel-19%20XR.docx) Remaining Issues of RLC-AM Enhancements for Rel-19 XR Apple discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 1: (RLC-11) When all RLC SDUs with SNs up to POLL\_SN are already positively/negatively acknowledged or discarded by PDCP, the transmitter should stop and reset the running t-PollRetransmit.

**RLC-11 (No SDU to transmit the poll with when remaining time based polling is triggered)**

[R2-2505705](file:///D:\3GPP\Extracts\R2-2505705.docx) Clarification on RLC AM NEC, Fujitsu discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 3: [RLC-11] In case “there are only SDUs buffered whose transmissions have been stopped due to discard indication from PDCP, there is no SDU to retransmit the poll with”, RAN2 confirm no need to poll or retransmit the poll for any acknowledgement (no spec change).

[R2-2506068](file:///D:\3GPP\Extracts\R2-2506068%20Discussion%20on%20RLC%20enhancements.docx) Discussion on RLC enhancements HONOR discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 1: (RLC-11) If t-PollRetransmit is not running, upon notification of a transmission opportunity by lower layer, the RLC TX shall consider an SDU for retransmission when an indication of remaining-time-based RLC polling is received but there is no SDUs to transmit.

**RLC-12 (Impact of discard on PDCP SN gap report)**

[R2-2505344](file:///D:\3GPP\Extracts\R2-2505344%20-%20Discussion%20on%20RLC%20re-transmission%20related%20enhancements.docx) Discussion on RLC re-transmission related enhancements OPPO discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 3 (RLC-12) No special handling is needed in R19 for PDCP SN gap report during UE mobility.

[R2-2505328](file:///D:\3GPP\Extracts\R2-2505328%20RLC%20enhancements.docx) RLC Enhancements Nokia, Nokia Shanghai Bell discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 7: RAN2 agree that unnecessary starting of t-Reordering at PDCP-mobility target RAN node because of PDCP-SN-gap information missing in the RAN is a problem to be solved in Rel.19.

Proposal 8: as part of PDCP entity re-establishment, for AM DRBs configured by upper layers to send a PDCP SN gap report in the uplink, the transmitting PDCP entity shall re-transmit any previously (prior to the PDCP entity re-establishment) transmitted PDCP SN Gap report(s) for which the successful delivery has not been confirmed by lower layers.

[R2-2505586](file:///D:\3GPP\Extracts\R2-2505586.docx) remaining open issues for RLC enhancements Lenovo discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 4. (RLC-12) If RAN2 agrees to introduce a solution for Rel-19, the UE should trigger a PDCP SN gap report when it receives a PDCP status report in which an SDU indicated in a previous SN gap report is negatively acknowledged.

**RLC-14 (Whether to discard RLC SDUs if they have been submitted to lower layers already)**

[R2-2505344](file:///D:\3GPP\Extracts\R2-2505344%20-%20Discussion%20on%20RLC%20re-transmission%20related%20enhancements.docx) Discussion on RLC re-transmission related enhancements OPPO discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 4 (RLC-14) The transmitting side of the AM RLC entity can discard the RLC SDU or SDU segment(s) that have been submitted to lower layers if stopReTxDiscardedSDU is configured and discard indication is received from upper layer.

[R2-2505804](file:///D:\3GPP\Extracts\R2-2505804%20Remaining%20open%20issues%20on%20RLC%20enhancements%20for%20XR.docx) Remaining open issues on RLC enhancements for XR LG Electronics Inc. discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 5. (RLC-14) The RLC entity does not discard the RLC SDU or RLC SDU segment as in legacy, although the RLC SDU or RLC SDU segment indicated by the discard indication from upper layers has been submitted to the lower layers, i.e., no RLC specification change required.

**PDCP-2 (PDCP SN gap report modifications)**

[R2-2505804](file:///D:\3GPP\Extracts\R2-2505804%20Remaining%20open%20issues%20on%20RLC%20enhancements%20for%20XR.docx) Remaining open issues on RLC enhancements for XR LG Electronics Inc. discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 6. (PDCP-2) PDCP SN gap report triggering condition is not updated considering Rel-19 RLC AM enhancement.

[R2-2505373](file:///D:\3GPP\Extracts\R2-2505373_xrRlcEnh.docx) RLC enhancements for XR ZTE Corporation, Sanechips discussion

Proposal 1(PDCP-2): If stopReTxDiscardedSDU is configured, PDCP SN gap report can be triggered even when the transmitting AM RLC entity has submitted the discarded RLC SDU or a segment thereof to the lower layers.

**UE capability-4 (Tx and Rx side capabilities coupling)**

[R2-2505882](file:///D:\3GPP\Extracts\R2-2505882%20-%20Remaining%20Open%20issues%20on%20RLC%20Enhancements.docx) Remaining Open Issues on RLC Enhancements Ericsson discussion Rel-19

Proposal 1 (UE capability-04) UE supporting txRLC-StopReTxDiscardedSDU-r19 need not indicate support for rxRLC-Discard-r19.

[R2-2505172](file:///D:\3GPP\Extracts\R2-2505172%20Remaining%20issues%20on%20XR-specific%20RLC%20Enhancement.docx) Remaining issues on XR-specific RLC Enhancement CATT discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 6: (UE capability-04) a UE supporting txRLC-StopReTxDiscardedSDU-r19 shall also indicate support of rxRLC-Discard-r19.

**Other RLC CR issues**

[R2-2505271](file:///D:\3GPP\Extracts\R2-2505271%20RLC%20Enhancements.docx) Leftover issues on RLC enhancements Sharp discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 8 The RLC CR clarifies that a discard indication shall cancel pending considerations for retransmission.

[R2-2505405](file:///D:\3GPP\Extracts\R2-2505405_Discussion%20on%20RLC%20enhancement%20for%20XR.docx) Discussion on RLC enhancement for XR vivo discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 8: The pending remaining time based RLC retransmission should be cancelled when the RLC entity receives a positively ACK for the corresponding RLC SDU, RAN2 to discuss whether there are any specification impacts.

[R2-2505586](file:///D:\3GPP\Extracts\R2-2505586.docx) remaining open issues for RLC enhancements Lenovo discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 3: RAN2 to discuss capturing an additional note in the spec to prevent the discrepancy in the information provided in a status report when the duration of the new timer and t-Reassembly are set to the same value.

**Enhancements, if time allows**

[R2-2505072](file:///D:\3GPP\Extracts\R2-2505072%20Discussion%20on%20remaining%20issues%20on%20RLC%20enhancements.docx) Discussion on RLC enhancements Qualcomm Incorporated discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 4. The transmitter includes an extra indication in the RLC PDU header whether the included poll is an enhanced poll (i.e. triggered based on remaining time).

Proposal 5. Upon receiving an enhanced poll, the receiver sends a status report immediately, ignoring t-StatusProhibit; or apply a shorter t-StatusProhibit for the report.

[R2-2505659](file:///D:\3GPP\Extracts\R2-2505659_8.7.5%20XR_RLC_v4.docx) Timely retransmissions for RLC AM Sony, Canon discussion Rel-19 NR\_XR\_Ph3

Proposal 1: After Rx side receives polling information, the Rx side should bypass/ignore the t-Reassembly timer for any SDU or segments of SDU if the t-Reassembly timer is running when generating status report.

Proposal 2: If proposal 1 is agreed, for any SDU or segments of SDU with bypassed t-Reassembly timer or still stuck in the lower layer retransmissions should be reported as UNKNOWN status in the status report (SR) by indicating/ redefining the corresponding reserved bit as 1 (R = 1).

[R2-2505328](file:///D:\3GPP\Extracts\R2-2505328%20RLC%20enhancements.docx) RLC Enhancements Nokia, Nokia Shanghai Bell discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 9: to minimize autonomous retransmissions, allow the network to send frequent ACKs, by introducing a possibility to configure the UE not to consider SDUs for retransmission based on received NACKs (to eradicate the problem of premature NACKs).

[R2-2505139](file:///D:\3GPP\Extracts\R2-2505139.docx) RLC AM retransmission enhancements Xiaomi discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505261](file:///D:\3GPP\Extracts\R2-2505261.docx) RLC Enhancements for XR Ofinno discussion Rel-19

[R2-2505271](file:///D:\3GPP\Extracts\R2-2505271%20RLC%20Enhancements.docx) Leftover issues on RLC enhancements Sharp discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505505](file:///D:\3GPP\Extracts\R2-2505505_Discussion%20on%20RLC%20AM%20enhancements.docx) Discussion on RLC AM enhancements Huawei, HiSilicon discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505643](file:///D:\3GPP\Extracts\R2-2505643%20Discussion%20on%20RLC%20Enhancements%20for%20Unnecessary%20Retransmissions%20Avoidance.docx) Discussion on RLC Enhancements for Unnecessary Retransmissions Avoidance ITRI discussion NR\_XR\_Ph3-Core

[R2-2505647](file:///D:\3GPP\Extracts\R2-2505647%20(R19%20NR%20XR%20AI875)%20Discussion%20on%20RLC%20enhancements.docx) Discussion on RLC enhancements InterDigital discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505677](file:///D:\3GPP\Extracts\R2-2505677%20Discussion%20on%20open%20issues%20for%20RLC%20enhancements.docx) Discussion on open issues for RLC enhancements Samsung discussion Rel-19

[R2-2505955](file:///D:\3GPP\Extracts\R2-2505955%20Discussion%20on%20the%20open%20issue%20of%20RLC%20enhancements.docx) Discussion on the open issue of RLC enhancements CMCC discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2506189](file:///D:\3GPP\TSGR2\TSGR2_131\Docs\R2-2506189.zip) On remaining issue on RLC enhancements NTT DOCOMO INC.. discussion Rel-19

### 8.7.6 XR rate control

Remaining open issues related to XR rate control.

**UE capability-5 (Maximum number of QoS flows that a UE supports for rate control)**

[R2-2505406](file:///D:\3GPP\Extracts\R2-2505406_Discussion%20on%20remaining%20issues%20for%20XR%20rate%20control.doc) Discussion on XR rate control vivo discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 1 (Capability-05) RAN2 to define the maximum number of allowed QoS flows for rate control as an AS UE capability, with the value up to 16.

[R2-2505558](file:///D:\3GPP\Extracts\R2-2505558%20UL%20rate%20control.docx) Discussion on UL rate control for Rel-19 XR Samsung discussion Rel-19 NR\_XR\_Ph3-Core

[UE capability-05] Proposal 6: RAN2 to not consider UE AS capability on the maximum number of QoS flows subject to rate control.

DISCUSSION:

* QCM thinks a capability is needed as different types of UEs can have different capabilities, e.g. AR glasses. Ofinno agrees.
* Huawei sees two issues: maximum number of flows and whether capability is needed. Huawei thinks 8 flows is enough, so can be handled with single capability.
* Ofinno thinks less flows also means smaller MAC CE.
* Nokia agrees with Huawei, there is no need for many flows and we can agree a number per UE.
* Xiaomi also thinks we need a capability.
* Sharp thinks that the number of flows does not have much impact on UE processing, one single value is enough.
* ZTE also does not think the complexity issue, the UE can support a small number of flows, then the NW will only control a small number. We just need a single maximum value.
* QCM indicates that some application like cloud gaming require more than, e.g. 8 flows. We can further discuss the limitation for UE to send queries.
* ZTE still does not see a complexity issue. ZTE thinks we do not have to control a lot flows, 8 is more than enough.
* OPPO thinks that flow adaptation impacts reconfiguration of codec, so up to 4 without capability is OK.
* IDT asks why we need a maximum value if we don’t have a capability.
* Huawei also thinks we need a maximum value for RRC configuration. Currently the CR captures 8.
* Ericsson thinks that signalling should support up to 64. If we restrict, then it has impact on CN.
* Futurewei also thinks we do not need a high number. We only need to rate-adapt those flows which contribute to the traffic.
* Nokia thinks that we can just agree no capability is needed. One thing is RRC configuration and the other thing is limitation in MAC CE format. ZTE agrees.
* Chair: It seems whether/what is the maximum number flows may depend on MAC CE format, so we come back to this, if needed, after discussing MAC CE format.
* No capability to indicate the number of rate-adaptable flows is introduced.

**MAC-3, MAC-4 (QoS flow – explicit or implicit)**

[R2-2505648](file:///D:\3GPP\Extracts\R2-2505648%20(R19%20NR%20XR%20AI876)%20Discussion%20on%20UL%20congestion%20signaling.docx) Discussion on UL congestion signaling InterDigital discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 1: Use the LCID + QFI (6 + 6 bits) combination to identify a specific QoS flow for UL rate control.

[R2-2505446](file:///D:\3GPP\Extracts\R2-2505446%20Remaining%20Issues%20of%20UL%20Rate%20Control%20for%20Rel-19%20XR.docx) Remaining Issues of UL Rate Control for Rel-19 XR Apple discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 1: (MAC-3) For identifier of QoS flows in the UL Rate Control MAC CE, RAN2 should focus on implicit indication of QFI.

[R2-2505350](file:///D:\3GPP\Extracts\R2-2505350%20Discussions%20on%20XR%20rate%20control.docx) Discussions on XR rate control Fujitsu discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 1: (MAC-3) ID for QoS flows in UL Rate Control MAC CE is the index of the QoS flow.

DISCUSSION on explicit vs implicit QFI indication:

* Nokia thinks that explicit ID is only beneficial in case of single QFI indication, for more than this this implicit is more beneficial.
* QCM agrees with Apple and Nokia, this has less overhead.
* OPPO thinks implicit ccuases issues during reconfiguration/remapping.
* Xiaomi thinks this depends on the number of flows, implicit makes more sense as we do not need many flows to be controlled.
* Vivo thinks implicit is more signalling overhead friendly.
* ZTE agrees bitmap is better provided that we limit the maximum number of controllable flows.
* Lenovo assumes a limited number is OK, but still thinks explicit is simpler.
* LGE thinks explicit is simpler to interpret by the UE.
* Huawei indicates that we agreed multiple flows in one MAC CE, so prefers implicit to reduce overhead.
* Ofinno supports implicit way for the overhead reasons.
* CATT supports explicit manner as overhead for DL is an issue. Thinks that implicit requires more discussions.
* Sharp thinks both options work, but implicit is more efficient.
* NEC support explicit.
* Samsung thinks implicit is more efficient.
* Fujitsu thinks explicit is not needed as we can use RRC ID.

Show of hands on explicit vs implicit QFI indication:

* + - Implicit: 15
    - Explicit: 8
* We go with implicit way

**MAC-3, MAC-4 (DRB ID – explicit or implicit)**

[R2-2505446](file:///D:\3GPP\Extracts\R2-2505446%20Remaining%20Issues%20of%20UL%20Rate%20Control%20for%20Rel-19%20XR.docx) Remaining Issues of UL Rate Control for Rel-19 XR Apple discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 2: (MAC-3) The QoS flows in the UL Rate Control MAC CE can be identified via a DRB ID along with a bitmap of QoS flows mapped to the indicated DRB.

[R2-2505350](file:///D:\3GPP\Extracts\R2-2505350%20Discussions%20on%20XR%20rate%20control.docx) Discussions on XR rate control Fujitsu discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 2: (MAC-3) The mapping between the index in the rate control MAC CE and the QFI and the PDU session ID can be pre-defined, e.g., based on the ascending order of PDU session ID and QFI.

[R2-2506191](file:///D:\3GPP\TSGR2\TSGR2_131\Docs\R2-2506191.zip) On remaining issue on XR UL rate control NTT DOCOMO INC.. discussion Rel-19

Proposal 1. (MAC-04) We should adopt the implicit signaling, i.e., a list of combinations of a QFI and a DRB ID is configured by RRC reconfiguration in advance, and then a bitmap in the MAC CE which corresponds to the list preconfigured in RRC, indicates one or multiple QoS flows.

DISCUSSION on explicit vs implicit DRB indication:

* QCM agrees with Fujitsu. We can have an identifier configured.
* Ofinno does not like explicit indication. It can increase overhead if flows are mapped to different DRBs.
* Ericsson thinks that explicit DRB is not beneficial having implicit QFI. RRC identifier would solve the issue.

DISCUSSION on whether we have a mapping rule or RRC ID:

* Nokia thinks mapping rule is sufficient.
* ZTE thinks that what works better depends on the maximum number.
* The mapping between the index in the rate control MAC CE and the QFI and the PDU session ID/DRB ID can be pre-defined/configured
* Offline to discuss:
  + - Whether we have a maximum number of flows rate-adaptable with MAC CE
    - Whether we introduce an identifier in RRC for mapping between PDU/DRB+Qos flow ID and an identifier used in MAC CE, or we use a mapping based on order of PDSU session and QF ID, including whether DRB ID or PDU session ID should be used for mapping
    - Any other issues for MAC CE format
* [AT131][502][XR] MAC CE for XR rate (LGE)

Scope: Discuss the details of MAC CE format for XR rate control

Intended outcome: Report with agreeable proposals

Deadline: Report ready for Thursday CB session

**MAC-3, MAC-4 (Detailed design)**

[R2-2505446](file:///D:\3GPP\Extracts\R2-2505446%20Remaining%20Issues%20of%20UL%20Rate%20Control%20for%20Rel-19%20XR.docx) Remaining Issues of UL Rate Control for Rel-19 XR Apple discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 3: (MAC-4) The MAC CE for UL rate control/query should include the following:

• One DRB ID

• One bitmap indication of concerned QoS flow IDs that are mapped to the indicated DRB

• A list of recommended/preferred rates corresponding to the concerned QoS flow IDs

[R2-2505350](file:///D:\3GPP\Extracts\R2-2505350%20Discussions%20on%20XR%20rate%20control.docx) Discussions on XR rate control Fujitsu discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 3: (MAC-4) In the rate control MAC CE, a bitmap indicates the index (indices) of the QoS flows for rate control/query.

Proposal 3a: (MAC-4) The length of the bitmap is 8 bits.

Proposal 3b: (MAC-4) Each bit in the bitmap indicates whether the bit rate field for the corresponding QoS flow is present or not.

[R2-2505648](file:///D:\3GPP\Extracts\R2-2505648%20(R19%20NR%20XR%20AI876)%20Discussion%20on%20UL%20congestion%20signaling.docx) Discussion on UL congestion signaling InterDigital discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 2: For a DRB, only one LCID indication within the UL rate control MAC CE is required which can follow number of QFIs for QoS flows for which the rate control information is provided for the given DRB.

Proposal 3: [MAC-4] The new UL Rate Control MAC CE can provide UL rate control information for multiple QoS flows within a single DRB.

Proposal 4: [MAC-4] Use an extension bit to indicate a further pair of QFI+Bit Rate fields follows in the UL Rate Control MAC CE.

**MAC-5 (Handling of triggered UL rate queries)**

[R2-2505578](file:///D:\3GPP\Extracts\R2-2505578%20Concluding%20XR%20rate%20control%20for%20Rel-19.docx) Concluding XR rate control for Rel-19 Nokia, Nokia Shanghai Bell discussion NR\_XR\_Ph3-Core

Proposal 4 (MAC-5): The UL rate control MAC CE can be transmitted when available UL-SCH resources can accommodate the UL rate control MAC CE including all the pending queries plus its subheader.

[R2-2505406](file:///D:\3GPP\Extracts\R2-2505406_Discussion%20on%20remaining%20issues%20for%20XR%20rate%20control.doc) Discussion on XR rate control vivo discussion Rel-19 NR\_XR\_Ph3-Core

Proposal 4 (MAC-05) UL Rate Control MAC CE is transmitted if the available UL-SCH resources can accommodate at least one of the pending queries.

Proposal 5 (MAC-05) UE can decide the included pending rate control queries in UL Rate Control MAC CE, in two ways:

- Way-1: totally up to UE implementation;

- Way-2: UE can decide how many pending rate control queries to include based on the amount of UL-resurces, and then select the queries in the decreasing priority order of LCH, mapped from the corresponding QoS flows.

DISCUSSION:

* QCM prefers to leave this up to UE implementation. There is not always the need to adapt at the same time. UE can decide which queries to include. Query MAC CE has low priority so UE may have problem always transmitting all queries at once.
* Ofinno supports vivo proposal, but has another option for choosing the flows.
* Apple thinks we agreed that we should follow legacy, so UE can decide which flows to include.
* LGE thinks there is some impact on specs.
* Lenovo that form specifications point of view we can follow Nopkia’s proposal, but UE decides when to trigger a query.
* Sharp thinks it is not a big problem to delay transmission of the MAC CE.
* CMCC indicates that we have already implicit way, so Nokia’s proposal is preferred.
* LGE thinks XR is different than legacy MAC CE, because XR is high bitrate service.
* Ofinno has concerns on Nokia’s proposal as this MAC CE is very low priority.
* Huawei agrees with LGE and Lenovo. Huawei does not want truncated MAC CE, but we can leave up to UE what to include.
* QCM does not think rate query is up to UE implementation as this comes from higher layer.
* No truncated rate query MAC CE is introduced.
* UL Rate Control MAC CE can be transmitted if the available UL-SCH resources can accommodate at least one of the pending queries. If not all can be accommodated, it is up to UE implementation which ones to include. We can capture this as a NOTE in MAC, if possible.

**Other issues, if time allows**

[R2-2505578](file:///D:\3GPP\Extracts\R2-2505578%20Concluding%20XR%20rate%20control%20for%20Rel-19.docx) Concluding XR rate control for Rel-19 Nokia, Nokia Shanghai Bell discussion NR\_XR\_Ph3-Core

Proposal 5: For XR rate control, RAN2 discusses whether the prohibit timer starts or restarts when the UE receives the uplink rate control MAC CE from the gNB.

[R2-2505883](file:///D:\3GPP\Extracts\R2-2505883_Remaining%20Issues%20on%20XR%20Rate%20Control.docx) Remaining Issues on XR Rate Control Ericsson discussion Rel-19

Proposal 1 Discuss the issue on the CN being unaware of UE’s XR rate control capability when determining the rate adaptability of the QoS flow.

Proposal 2 Send an LS to SA2 to discuss the issue about awareness of UE’s XR rate control capability in the CN.

[R2-2505073](file:///D:\3GPP\Extracts\R2-2505073%20Discussion%20on%20remaining%20issues%20on%20XR%20rate%20control.docx) Discussion on XR rate control Qualcomm Incorporated discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505118](file:///D:\3GPP\Extracts\R2-2505118%20Remaining%20issues%20on%20XR%20rate%20control_final.docx) Discussion on XR rate control Huawei, HiSilicon discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505140](file:///D:\3GPP\Extracts\R2-2505140.docx) XR rate control Xiaomi discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505173](file:///D:\3GPP\Extracts\R2-2505173%20Discussion%20on%20XR%20Rate%20Control.docx) Discussion on XR Rate Control CATT discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505262](file:///D:\3GPP\Extracts\R2-2505262.docx) UL Rate Control for XR Ofinno discussion Rel-19

[R2-2505374](file:///D:\3GPP\Extracts\R2-2505374_XR%20rate%20control.docx) XR Rate control details ZTE Corporation, Sanechips discussion

[R2-2505587](file:///D:\3GPP\Extracts\R2-2505587.docx) Remaining open issues for XR Rate Control Lenovo discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505639](file:///D:\3GPP\Extracts\R2-2505639_Uplink%20rate%20control%20for%20XR.docx) Uplink rate control for XR NEC discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505648](file:///D:\3GPP\Extracts\R2-2505648%20(R19%20NR%20XR%20AI876)%20Discussion%20on%20UL%20congestion%20signaling.docx) Discussion on UL congestion signaling InterDigital discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505750](file:///D:\3GPP\Extracts\R2-2505750%20-%20Discussion%20on%20XR%20Rate%20Control.docx) Discussion on XR Rate Control OPPO discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505805](file:///D:\3GPP\Extracts\R2-2505805%20Remaining%20open%20issues%20on%20rate%20control%20signaling%20for%20XR.docx) Remaining open issues on rate control signaling for XR LG Electronics Inc. discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2505883](file:///D:\3GPP\Extracts\R2-2505883_Remaining%20Issues%20on%20XR%20Rate%20Control.docx) Remaining Issues on XR Rate Control Ericsson discussion Rel-19

[R2-2505971](file:///D:\3GPP\Extracts\R2-2505971.docx) Remaining open issues on rate control for XR CMCC discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2506069](file:///D:\3GPP\Extracts\R2-2506069%20Discussion%20on%20XR%20rate%20control.docx) Discussion on XR rate control HONOR discussion Rel-19 NR\_XR\_Ph3-Core

[R2-2506130](file:///D:\3GPP\Extracts\R2-2506130_Remaining%20issues%20of%20XR%20rate%20control.docx) Remaining issues of XR rate control ETRI discussion Rel-19

[R2-2506191](file:///D:\3GPP\TSGR2\TSGR2_131\Docs\R2-2506191.zip) On remaining issue on XR UL rate control NTT DOCOMO INC.. discussion Rel-19

## 8.18 LTE-based 5G Broadcast

(LTE\_terr\_bcast\_Ph2; leading WG: RAN1; REL-19; WID RP-250794)

Time budget: 0.25 TU

Tdoc Limitation: 1 tdoc

### 8.18.1 Organizational

Incoming LS, rapporteur input, running CRs, etc.

**Incoming LS**

[R2-2505022](file:///D:\3GPP\Extracts\R2-2505022_R1-2504922.docx) LS on RAN2 aspects for LTE-based 5G Broadcast Phase 2 (R1-2504922; contact: EBU) RAN1 LS in Rel-19 LTE\_terr\_bcast\_Ph2 To:RAN2

* Noted

**Running CRs**

[R2-2505411](file:///D:\3GPP\Extracts\R2-2505411_RRC_CR_LTE_5G_Bcast_v08_rapp.docx) Introduction of LTE-based 5G Broadcast Phase 2 Qualcomm Incorporated, EBU CR Rel-19 36.331 18.6.0 5143 - B LTE\_terr\_bcast\_Ph2-Core

[R2-2505556](file:///D:\3GPP\Extracts\R2-2505556%20Introduction%20of%20LTE-based%205G%20Broadcast%20Phase%202.docx) Introduction of LTE-based 5G Broadcast Phase 2 Samsung CR Rel-19 36.321 18.4.0 1593 - B LTE\_terr\_bcast\_Ph2-Core

[R2-2505740](file:///D:\3GPP\Extracts\R2-2505740%20Introduction%20of%20LTE-based%205G%20Broadcast%20Phase%202.docx) Introduction of LTE-based 5G Broadcast Phase 2 Huawei, HiSilicon CR Rel-19 36.306 18.5.0 1920 - B LTE\_terr\_bcast\_Ph2

[R2-2505741](file:///D:\3GPP\Extracts\R2-2505741%20Introduction%20of%20LTE-based%205G%20Broadcast%20Phase%202.docx) Introduction of LTE-based 5G Broadcast Phase 2 Huawei, HiSilicon, Qualcomm Incorporated CR Rel-19 36.331 18.6.0 5144 - B LTE\_terr\_bcast\_Ph2

[R2-2505799](file:///D:\3GPP\Extracts\R2-2505799%20Introduction%20of%20LTE-based%205G%20Broadcast%20Phase%202.docx) Introduction of LTE-based 5G Broadcast Phase 2 ZTE Corporation, Sanechips CR Rel-19 36.300 18.5.0 1428 - B LTE\_terr\_bcast\_Ph2-Core

* The above running CRs are endorsed
* RRC-4: RRC capability CR will be merged into overall RRC CR
* Lenovo asks if we need separate RRC capability CR.
* QCM clarifies that we can merge with overall RRC CR.

**Open issue lists**

[R2-2505412](file:///D:\3GPP\Extracts\R2-2505412%20LTE%205GB%20RRC%20Open%20Issues.docx) [POST130][510][LTE Broadcast] RRC Open Issues Qualcomm Incorporated, EBU report Rel-19 LTE\_terr\_bcast\_Ph2-Core

[R2-2505554](file:///D:\3GPP\Extracts\R2-2505554%20%5bPOST130%5d%5b511%5d%5bLTE%20Broadcast%5d%20MAC%20Open%20Issues.docx) [POST130][511][LTE Broadcast] MAC Open Issues Samsung report

* Two documents above are noted
* Open issues discussed based on company Tdocs

WI completion:

* From RAN2 point of view WI can be closed

### 8.18.2 Other

RAN2 signalling impacts to support time-frequency interleavers.

**RRC open issues**

[R2-2505413](file:///D:\3GPP\Extracts\R2-2505413%20LTE%205GB%20Views%20on%20Open%20Issues.docx) Views on RRC and MAC Open Issues Qualcomm Incorporated discussion Rel-19 LTE\_terr\_bcast\_Ph2-Core

Proposal 3: For open issue RRC-1: Introduce Rel-19 specific MBS Interest Indication IE (MBMSInterestIndication-v19xy-IEs) taking the TP from R2-2505413 as baseline.

Proposal 4: For open issue RRC-2: No RAN2 spec impact.

Proposal 5: For open issue RRC-3: Wait for RAN1 further update, if any, and finalize during RRC CR review.

On P3:

* Samsung indicates there was some agreement in RAN1 already which we can capture.

On P2:

* ZTE has different understanding. ZTE thinks it should be captured, e.g. as captured in stage-2 CR currently.
* For open issue RRC-1: Introduce Rel-19 specific MBS Interest Indication IE (MBMSInterestIndication-v19xy-IEs) taking the TP from R2-2505413 as baseline. We will consider RAN1 agreements. Consider also whether procedural changes, e.g. as in R2-2505557 are needed.
* RRC-2: Capture the RAN1 agreement in stage-2 running CR.
* For open issue RRC-3: Wait for RAN1 further update, if any, and finalize during RRC CR review.

[R2-2505557](file:///D:\3GPP\Extracts\R2-2505557%20Way%20forward%20on%20remaining%20issues%20for%20RRC%20and%20MAC.docx) Way forward on remaining issues for RRC and MAC Samsung discussion Rel-19

[RRC-1] Proposal 3: RAN2 to capture the procedural and signalling impact for the Rel-19 IE of MBMS Interest Indication. (Adopt TP2)

[RRC-2] Proposal 4: RAN2 specification need not capture anything for time-interleaved PMCH transmission (as configured) exceeding UE’s soft buffer size or supported TBS and consider RAN1 agreement as informative.

[RRC-3] Proposal 5: RAN2 need to wait for RAN1 progress about cyclic shift parameter for PMCH. Maintain the current placeholder in RRC specification.

**MAC-1 (HARQ handling)**

[R2-2505413](file:///D:\3GPP\Extracts\R2-2505413%20LTE%205GB%20Views%20on%20Open%20Issues.docx) Views on RRC and MAC Open Issues Qualcomm Incorporated discussion Rel-19 LTE\_terr\_bcast\_Ph2-Core

Proposal 1: For open issue MAC-1: Incorporate the rapporteur’s proposed changes #1 and #2 from the email discussion report R2-2505554.

[R2-2505557](file:///D:\3GPP\Extracts\R2-2505557%20Way%20forward%20on%20remaining%20issues%20for%20RRC%20and%20MAC.docx) Way forward on remaining issues for RRC and MAC Samsung discussion Rel-19

Proposal 1: RAN2 to specify the HARQ handling for Rel-19 time-interleaved MCH transmission in MAC specification. (Adopt TP 1)

* ZTE think this is over-specification. We did not specify this for MBS previously. ZTE thinks even without this it works. QCM agrees – the change in the figure would be sufficient.
* Samsung thinks this is a new mechanism, so this is why it is different.
* MAC-1: RAN2 to specify the HARQ handling for Rel-19 time-interleaved MCH transmission in MAC specification. (Adopt TP 1 as baseline, can attempt to simplify)

[R2-2505739](file:///D:\3GPP\Extracts\R2-2505739%20Discussion%20on%20timefrequency%20interleavers%20for%20MBMS.docx) Discussion on time-frequency interleavers for MBMS Huawei, HiSilicon discussion Rel-19 LTE\_terr\_bcast\_Ph2

Proposal 2: No need to introduce HARQ handling specific to interleaving MBMS.

[R2-2505800](file:///D:\3GPP\Extracts\R2-2505800%20Open%20issues%20in%20MAC%20layer%20on%20supporting%20TFI.doc) Open issues in MAC layer on supporting TFI ZTE Corporation, Sanechips discussion Rel-19 LTE\_terr\_bcast\_Ph2

Proposal 1 Do not specify HARQ handling in case of time interleaving for LTE eMBMS.

**MAC-2 (Extended MSI)**

[R2-2505413](file:///D:\3GPP\Extracts\R2-2505413%20LTE%205GB%20Views%20on%20Open%20Issues.docx) Views on RRC and MAC Open Issues Qualcomm Incorporated discussion Rel-19 LTE\_terr\_bcast\_Ph2-Core.

Proposal 2: For open issue MAC-2: Mirror the same changes from 6.1.3.7 to 6.1.3.7a in MAC CR.

[R2-2505557](file:///D:\3GPP\Extracts\R2-2505557%20Way%20forward%20on%20remaining%20issues%20for%20RRC%20and%20MAC.docx) Way forward on remaining issues for RRC and MAC Samsung discussion Rel-19

[MAC-2] Proposal 2: To support implementation flexibility, reflect the MSI description changes also to extended MSI description.

[R2-2505800](file:///D:\3GPP\Extracts\R2-2505800%20Open%20issues%20in%20MAC%20layer%20on%20supporting%20TFI.doc) Open issues in MAC layer on supporting TFI ZTE Corporation, Sanechips discussion Rel-19 LTE\_terr\_bcast\_Ph2

Proposal 2 Do not specify Extended MSI MAC CE enhancements in case of time interleaving for LTE eMBMS.

* ZTE thinks that extended MSI is for different use case than dedicated MBMS.
* QCM indicates that in RRC CONNECTED the UEs can also receive time-interleaved service.
* Samsung thinks we do not have to restrict network flexibility.
* Huawei has no strong view, but tend to think it is OK to capture.
* MAC-2: Mirror the same changes from 6.1.3.7 to 6.1.3.7a in MAC CR.

**MAC – other**

[R2-2505739](file:///D:\3GPP\Extracts\R2-2505739%20Discussion%20on%20timefrequency%20interleavers%20for%20MBMS.docx) Discussion on time-frequency interleavers for MBMS Huawei, HiSilicon discussion Rel-19 LTE\_terr\_bcast\_Ph2

Proposal 1: Following RAN1 agreement, RAN2 should capture in MAC that the number of subframes used for time-interleaving derived from ‘stop MTCH (x+1)’ is expected to be an integer multiple of MxN.

* QCM thought it is obvious from procedures, but after discussing offline is OK to capture.
* Following RAN1 agreement, RAN2 should clarify in MAC that the number of subframes used for time-interleaving derived from ‘stop MTCH (x+1)’ is expected to be an integer multiple of MxN.

**Other issues**

[R2-2505739](file:///D:\3GPP\Extracts\R2-2505739%20Discussion%20on%20timefrequency%20interleavers%20for%20MBMS.docx) Discussion on time-frequency interleavers for MBMS Huawei, HiSilicon discussion Rel-19 LTE\_terr\_bcast\_Ph2

Proposal 3: A separate frequency list is introduced in SIB15 to indicate provision of MBMS with interleaving, following similar principle as legacy.

* Noted, not needed
* QCM does not see a clear use case where the issue happens. There are no legacy UEs to handle.
* Samsung shares view with QCM. ZTE agrees.

## 8.19 TEI19

Time budget: 1 TU

Tdoc Limitation: 1 tdoc for new proposals and 1 tdoc for old proposals for RAN2-led.

1 additional tdoc for primary co-sourcing company on top of the limit is allowed for co-sourced contribution with 4 or more companies.

Companies are encouraged to submit co-sourced contributions, which will have priority for discussion in RAN2#130

### 8.19.2 Other WG-led

[R2-2505330](file:///D:\3GPP\Extracts\R2-2505330%20Introduction%20of%20CAS%20muting%20in%20LTE-based%205G%20broadcast%20%5b5GB_CASMuting%5d.docx) Introduction of CAS muting in LTE-based 5G broadcast [5GB\_CASMuting] Huawei, HiSilicon, Qualcomm Incorporated, EBU CR Rel-19 36.306 18.5.0 1916 - B TEI19

* The CR is endorsed
* Handle in the post-meeting e-mail discussion whether we should add a capability dependency

[R2-2505331](file:///D:\3GPP\Extracts\R2-2505331%20Introduction%20of%20CAS%20muting%20in%20LTE-based%205G%20broadcast%20%5b5GB_CASMuting%5d.docx) Introduction of CAS muting in LTE-based 5G broadcast [5GB\_CASMuting] Huawei, HiSilicon, Qualcomm Incorporated, EBU CR Rel-19 36.331 18.6.0 5139 - B TEI19

* The CR is agreed
* Lenovo wonders if the capability should capture that UE also should support Rel-14 feMBMS.
* QCM thinks this should refer to a new capability which we introduce as part of LTE based 5G broadcast WI.