**3GPP TSG RAN Meeting #102 RP-232779**

**Edinburgh, Scotland, December 11-15, 2023**

## Status Report to TSG

**Agenda item:** 9.3.2.9

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **WI / SI Name** | XR Enhancements for NR | | | | |
| included in this status report | Study Item:  No | Core part:  Yes | Performance part:  No | | Testing part:  No |
| **Acronym** | NR\_XR\_enh-Core | | | | |
| **Unique ID** | 981039 | | | | |
| **TSG TDoc of latest approved WI/SI description (if any)** | [RP-223502](http://3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_98e/Docs/RP-223502.zip) | | | | |
| **Target Completion Date**  **(indicate if changed)** | Study Item: N/A | Core part:  2023/12 | Performance part: N/A | Testing part: N/A | |
| **Overall Completion level** | Study Item: N/A | Core part: 100% | Performance Part: N/A | Testing part: N/A | |

**Source:**

|  |  |  |
| --- | --- | --- |
| **Leading WG** | | RAN2 |
| **Rapporteur** | **Name** | Benoist Sébire |
| **Company** | Nokia |
| **Email** | benoist.sebire@nokia.com |

## 1 Work plan related evaluation

|  |  |
| --- | --- |
| **Do you want to modify the time budget for this WI/SI compared to what was endorsed at the last RAN meeting?** | No |

## 2. Detailed progress in RAN WGs since last TSG meeting (for all involved WGs)

## 2.1 RAN1

No new open issues have been identified and from RAN1 viewpoint, the work item can still be closed.

Corrections agreed since RAN#101:

- clarification of the definition of an invalid CG PUSCH agreed for 38.213;

- clarification of the definition of a valid CG PUSCH agreed for 38.214;

- Rel-18 multi-PUSCH CG is not supported for operation on shared spectrum;

- Clarification that the procedures in clause 6.3.2.1.4 of 38.212 are applicable when UTO-UCI and HARQ-ACK have the same priority and are jointly encoded;

- Inclusion of joint encoding of UTO-UCI and HARQ-ACK with Polar code when applicable on 6.3.2.4.1 of 38.212;

- Clarification of the Multiplexing of coded UCI bits with different priority indexes to PUSCH in 38.212;

- Clarification of the Resource allocation for uplink transmission with configured grant in 38.214;

- the HARQ process ID determination for multi-PUSCH per CG period as in RAN2 running CR R2-2309316;

- Clarification of the UE procedure for transmitting the physical uplink shared channel in 38.214.

## 2.2 RAN2

#### 2.2.1 Agreements

New agreements from **RAN2#123bis** meeting:

- Agreements on XR awareness

1. The definition of the BAT in the field description of the burstArrivalTime should be updated as follows: “indicates the average value of the arrival time of the first packet of the Data Burst”.

2. A choice structure comprising ReferenceTime IE and reference SFN/slot is designed for BAT reporting

- Agreements on DRX

1. New DRX cycles in rational numbers are supported for both short and long DRX cycles.

2. If short DRX cycle in rational number is configured, the length of the long DRX cycle shall be an integer multiple of the short DRX cycle, as in legacy.

3. The new DRX parameter(s) for non-integer DRX cycles are common to both DRX groups

4. At least use legacy formula and add floor () operation.

5. We will have normative text to avoid rounding errors.

6. specify the DRX cycle by different fields under a CHOICE structure and specify in the field description the correspondence between different fields and DRX cycles

- Agreements on BSR

1. Adopt an exponential BSR table. FFS on buffer size

2. The UE uses the new defined BS table if the buffered data volume is within the range of the new table, otherwise the legacy table is used.

3. New MAC CE including indication of table selection per LCG will be introduced. Exact format FFS (to be discussed in MAC CR review phase)

- Agreements on DSR

1. For triggering DSR, the shortest remaining-time left for the buffered data in UL is smaller than a configured threshold is used, if there is no pending DSR associated for that LCG.

2. One threshold per LCG for triggering purposes is enough for delay status report

3. The data volume calculation to be reported in the DSR will consider the at size of the full remaining PDUs in the PDU set (if any PDU within the PDU set is with remaining time below the threshold), if the PDU set discard is configured. FFS what to report for the case of not PDU set discard configured

4. Support single delay information per LCG as baseline for Rel-18 DSR. The remaining time (the shortest remaining time in the LCG) will be explicitly reported in the DSR.

- Agreements on Discard

1. We will use a discard timer mechanism for the low importance PDU set. We will allow a value of zero for the timer. The running discard timers are not changed.

2. It is up to UE implementation to determine which PSI levels will apply the discard mechanism

3. the gNB signals an activation/deactivation indication (e.g. when congestion situation is detection)

4. activation/deactivation is signaled using an ON/OFF mechanism on a per UE basis. Introduce new MAC CE.

- Agreements on CG

1. From RAN2 perspective, Multi-PUSCH CG is supported for Type 1 and Type 2 CG, i.e., [N] separated uplink grants occur in consecutive slots in one CG period.

2. We will specify some factors that the UE should consider when determining how to set the UTO-UCI bits in the MAC. FFS which ones we know for sure the UE shall at least consider

- Agreements on UE capabilities

1. For UL XR awareness related capabilities, UE shall not reject (i.e. not perform re-establishment) the network XR configuration even if the capability is not supported for a specific application

2. UE can indicate to RAN whether a UL QoS flow can be identified with PDU sets, as a UL traffic parameter via UE Assistance Information message.

3. Send an LS to SA2, CT1, SA4, explain assumption on RAN awareness and support for identification of UL PDU sets. It is up to SA2 whether AS/NAS interactions/signaling are required from upper layers

New agreements from **RAN2#124** meeting:

- Agreements on RLC open issues

1. Delay-critical data in RLC is determined by the indication from PDCP layer.

2. RLC data PDU(s) pending for RLC AM retransmission shall be included in the data volume calculation in RLC for DSR.

3. The PDU (s) stored in RLC with discardTimer expired, but has not been discarded, should be calculated in the data volume in RLC for DSR

4. RLC Control PDU shall be included in the data volume calculation in RLC for DSR

- Agreements on RRC open issues

1. The following cycles are supported for short DRX cycle

ms1001/240, ms25over6, ms25over3, ms1001over120, ms100over9, ms125over9, ms50over3, ms1001over60, ms200over9, ms100over3, ms1001over30, ms125over3, ms1001over24, ms200over3

2. The following cycles are supported for longDRX cycle (additional values requested by companies in red, additional values to handle multiple of short DRX cycle in blue):

ms1001/240, ms25over6, ms25over3, ms1001over120, ms100over9, ms125over9, ms50over3, ms1001over60, ms200over9, ms250over9, ms100over3, ms1001over30, ms125over3, ms1001over24, ms200over3, ms1001over15, ms250over3, ms1001over12, ms400over3.

3. Jitter range is signalled using separate values for upper and lower bound.

4 The granularity of jitter bound signalling is 0.5 ms.

5 Signalled jitter bound can be up to +/-7 ms with a separate value indicating beyond 7 ms and a separate value indicting jitter bound is 0.

6 The periodicity is signalled by the UE with INTEGER (1..640000) which expresses the value of periodicity in microseconds.

7 The remaining time threshold is signalled as INTEGER (5..68).

8 The following values are supported for PSI discard timer: {ms0, ms2, ms4, ms6, ms8, ms10, ms12, ms14, ms18, ms22, ms26, ms30, ms40, ms50, ms75, ms100}

9 The following values are supported for ul-TrafficInfoProhibitTimer-r18: {s0, s0dot5, s1, s2, s5, s10, s20, s30, s60, s90, s120, s300, s600, spare3, spare2, spare1}

10 T346x is maintained by the UE per QoS flow.

- Add a line in the normative text after the DRX formula stating that “The MAC entity shall ensure no rounding error is generated when performing the modulus operation with drx-NonIntegerShortCycle or drx-NonIntegerLongCycle as the divisor.” The exact method to implement the modulus operation without rounding error is left to UE implementation.

- RAN2 will not extend the preferred DRX cycle field in UEAssistanceInformation message for non-integer cycles.

- Agreements on BSR/DSR

1. The Refined BSR MAC CE includes a new 8-bit bitmap between the LCG bitmap and buffer size fields to indicate which BSR table an LCG uses.

2. The Refined BSR MAC CE has a one-octet eLCID.

3. The Refined BSR MAC CE has the same logical channel priority as the legacy BSR MAC CEs.

4. The DSR MAC CE uses one-octet eLCID

5. The DSR MAC CE has a logical channel priority lower than the Timing Advanced Report and higher than the SL-BSR (prioritized).

6. The PSI-Based PDU Discard Activation/Deactivation MAC CE use one-octet eLCID

7. Not introduce Truncated Refined BSR MAC CE, which uses the new BSR table.

8. Dynamic indication of BSR table in the DSR MAC CE is supported. Network can RRC configure whether LCG can use new BSR table for BSR. If the network configures new table for BSR the UE uses new table for DSR MAC CE. If configured, DSR MAC CE includes indicators on which BSR table is used to report data volume of an LCG. The same principles for BSR are used to determine whether legacy or new table is included.

9. The maximum buffer size can be determined based on the ratio between maximum link rate (60Mbps) and minimum frame rate (15 fps), which is 750KB.

10. The minimum buffer size can be determined based on the ratio between minimum bit rate (10 Mbps) and maximum frame rate (120 fps), which is 5 KB

11. Remaining time field range is 1 to 64 and 6 bits in DSR MAC CE. Update value in RRC to align.

12. If one LCG, that has new table configured, has buffered data that LCG is allowed to use refined BSR

- Agreements:

1. No dedicated SR configuration for DSR will be introduced, we use the same SR configuration for BSR

2. UE triggers SR after a DSR is triggered, if there is no PUSCH available to send the DSR MAC CE and there is no pending SR already triggered for this LCH.

3. If a MAC PDU is large enough to include all PDUs/SDUs within the triggering threshold from the LCGs that have pending DSRs, the UE shall not include DSR MAC CE in the MAC PDU

4. A pending DSR is cancelled if all the data within the triggering threshold is discarded or transmitted

5. DSR with a remaining time value zero ms for all LCG is not transmitted. The shortest non-zero remaining time is reported for a LCG.

6. UE cancels all pending DSRs upon MAC reset

- On PDCP: two timers but only one timer runs at a time in the spec.

- The PDCP Control PDUs should be considered as delay-critical PDCP data volume.

- The PDCP SDUs and PDCP Data PDUs to be retransmitted for AM DRBs should be considered as the delay-critical PDCP data volume.

- The PSI based SDU discard and the PDU set discard should be independent features in XR.

- The initial state of the PSI-Based PDU Discard Activation/Deactivation MAC CE is deactivated.

- In the MAC CE for the activation/deactivation of the PSI-based discard, introduce a bitmap for DRB to efficiently control multiple DRBs separately and simultaneously.

- RAN2 will not define non-integer periodicity for multi-PUSCH CG

- UE determines the unused CG PUSCH occasion by considering following factors:

- The amount of buffered data from the LCH(s) which can be transmitted on the corresponding available CG occasions.

- xr-AssistanceInfo-r18 → Indicates whether UE supports the UE assistance information on UL traffic information to report jitter range, burst arrival time, and data burst periodicity per UL QoS flow as specified in TS 38.331 [9]. ~~UE supporting xr-AssistanceInfo-r18 shall also support XR awareness for UL traffic (i.e. ability to identify PDU sets, data bursts, PSI).~~

- Introduce a UE capability for C\_DRX enhancement(*supportOfCdrxEnhancement*) to indicate whether the UE supports DRX cycle with rational numbers and DRX formula with a counter to deal with the C-DRX SFN wrap around issue (as it is now in CR)

#### 2.2.2 Open Issues

No open issues left and from RAN2 viewpoint, the work item can be closed.

## 2.3 RAN3

#### 2.3.1 Agreements

New agreements from **RAN3#121bis** meeting:

- For PDU Set Handling:

- WA: Taking Opt1(Explicit PDU Set handling Support indicator) for XR in R18.

- A new support indication should be included in the SMF-related IEs, i.e.

+ PDU Session Management case: PDU Session Resource Setup Response Transfer, PDU Session Resource Modify Response Transfer,

+ Handover case: Path Switch Request Transfer, and Handover Request Acknowledge Transfer IEs.

- For UP design:

- QFI needs to be included in Xn-U and F1-U for downlink data.

- Rule out option 2. Postpone to next meeting the decision between option 1 and option 3

- If a gNB supports PDU Set handling, all parts support it: DU, CU-CP, CU-UP.

- For ECN Marking

- Add the ECN Marking Request indicator or the information used to request congestion monitoring over NGAP, XnAP, and E1AP. The granularity over interfaces can be further checked.

- Add the information used to request congestion monitoring over F1AP.

- NG-RAN node provides the indication whether the QoS Flow is established with ECN marking request or congestion monitoring request activated or not activated over NGAP, F1AP and E1AP. FFS on XnAP.

- RAN3 agrees to address SA case with the first priority.

- For TS 38.415 (PDU TYPE 1) and TS 38.425 (PDU TYPE 2), two new presence flags are needed. FFS on the details (names and descriptions).

- There is a single piece of information produced by NG-RAN to address ECN marking for L4S at UPF and congestion information exposure.

- Agree the basic structure in the SoD (R3-235723) for the request IE for XnAP, NGAP and E1AP to transfer the request.

- For F1AP, only one information request IE is needed. FFS on the IE name.

- Add the request IE in the same level of the QoS Flow Level QoS Parameters IE.

- Agree the basic structure in the SoD (R3-235723) for the feedback IE. FFS whether separate feedback IEs are needed for uplink and downlink.

New agreements from **RAN3#122** meeting:

- For PDU Set Handling

- Turn the following WA into agreement on the capability indication of PDU set handling: Taking Opt1 (Explicit PDU Set handling Support indicator) for XR in R18;

- Introduce PDU Set based Handling Indicator IE with value "supported" in NGAP, XnAP, F1AP, and E1AP;

- Introduce a new Extension header to transfer the PDU Set Information and indication of End of Data Burst;

- For UL Jitter, describe gNB-DU behavior in F1AP;

- For DL N6 Jitter, define N6 Jitter including lower bound jitter and upper bound jitter as INTEGER (-127..127);

- For EDB, use 3-bit to align with TS 26.522.

- For ECN Marking and others

- No need to define separate feedback IE for uplink and downlink;

- Agree to follow Option 3 in this SoD (R3-237781);

- Agree to use the request structures in Request Structure for NG-C, Xn and E1 and Request Structure for F1;

- Agree to use the structure in NG-RAN Information Definition for NG-U (TS38.415) and NG-RAN Information;

- Definition for F1-U (TS38.425).

Also RAN3 has identified three new specifications that are impacted: 38.410, 38.420 and 38.470. The corresponding update to the WID is provided in RP-232778.

#### 2.3.2 Remaining Open issues

Following issues pends on SA2/RAN2 decision, and the potential RAN3 impact can be handled as correction CR. The work item can be closed.

- Whether need separate UL PDU Set QoS parameters and DL PDU Set QoS parameters;

- Whether an XR-capable NG-RAN node need to inform SMF whether a QoS Flow is established with PDU Set QoS parameters or with normal QoS parameters;

- Whether gNB indicates to SMF when PDU Set QoS handling can’t be supported anymore or when PDU Set QoS handling can be supported again using NGAP PDU SESSION RESOURCE NOTIFY message;

- F1AP impact to support new DRX cycle.

## 3. Detailed progress in SA WGs since last TSG meeting (for all involved WGs)

## 4. References

New references from the last RAN WG meetings.

**RAN2#123bis**

1. R2-2309431, Reply LS on new DRX cycles in rational numbers (R1-2308654; contact: Qualcomm), RAN1
2. R2-2309432, LS on stage 2 description for physical layer enhancements for XR (R1-2308659; contact: Nokia), RAN1
3. R2-2309455, Reply LS on new DRX cycles in rational numbers (R4-2314383; contact: Niokia), RAN4
4. R2-2309480, LS Reply on Design of RTP Header Extension for PDU Set Handling (S4-231592; contact: Lenovo), SA4
5. R2-2309724, Running RLC CR for XR, vivo
6. R2-2309847, Introduction of XR to PDCP, LG Electronics Inc.
7. R2-2309873, Work Plan for Rel-18 WI on XR Enhancements for NR, Nokia, Qualcomm (Rapporteurs)
8. R2-2309874, SA2 Status for XR, Nokia, Qualcomm (Rapporteurs)
9. R2-2309875, SA4 Status for XR, Nokia, Qualcomm (Rapporteurs)
10. R2-2309876, Stage 2 Overview of XR Enhancements, Nokia, Qualcomm (Rapporteurs)
11. R2-2309877, XR Open Issues, Nokia, Huawei, Intel, LG, Qualcomm, Vivo (Rapporteurs)
12. R2-2310731, Introduction of XR enhancements into TS 38.331 (running CR), Huawei, HiSilicon
13. R2-2309704, Leftover issues on XR awareness, CATT
14. R2-2309725, Discussion on XR awareness, vivo
15. R2-2309878, RRC UAI and End of Data Burst for XR, Nokia, Nokia Shanghai Bell
16. R2-2309896, Discussions on uplink End of Data Burst indication for XR, Fujitsu
17. R2-2309963, Discussion on PDU sets and data burst awareness in RAN, Lenovo
18. R2-2309966, Discussion on XR awareness, Samsung
19. R2-2310007, Discussion on XR awareness, Spreadtrum Communications
20. R2-2310108, Details of UAI for XR awareness in RAN, ZTE Corporation, Sanechips
21. R2-2310153, UE Assistance on XR awareness support per QoS flow, Intel Corporation
22. R2-2310330, Remaining Details of UAI for XR-Awareness, Apple
23. R2-2310386, Discussion on XR awareness, OPPO
24. R2-2310432, Remaining Issues of XR traffic assistance information, CMCC
25. R2-2310443, End of data burst, LG Electronics Inc.
26. R2-2310452, Remaing issues of XR awareness, NEC
27. R2-2310657, Discussion on XR awareness, Xiaomi Communications
28. R2-2310664, On XR awareness, Google Inc.
29. R2-2310729, Discussion on XR assistance information for UL, Huawei, HiSilicon
30. R2-2310764, Considerations on awareness of XR PDU prioritization, Sony
31. R2-2310786, Remaining issues on XR awareness, China Telecom
32. R2-2310937, XR awareness, InterDigital
33. R2-2311028, Discussion on XR awareness, Ericsson
34. R2-2309486, Power saving enhancements for XR, Qualcomm Incorporated
35. R2-2309640, Remaining issues for C-DRX enhancements for XR, Huawei, HiSilicon
36. R2-2309692, Remaining issues on DRX enhancement for XR, LG Electronics Inc.
37. R2-2309705, Leftover issues on DRX enhancements, CATT
38. R2-2309726, Analysis on remaining issues for C-DRX enhancements, vivo
39. R2-2309799, Discussion on C-DRX enhancement for XR, NEC Corporation
40. R2-2309897, Remaining issues on C-DRX enhancement for XR, Fujitsu
41. R2-2309964, Discussion of DRX enhancement, Lenovo
42. R2-2309979, Discussion on remaining issue of power saving scheme for XR, Samsung
43. R2-2310042, Discussing on XR-specific power saving, Xiaomi Communications
44. R2-2310110, XR-specific power saving, ZTE Corporation, Sanechips
45. R2-2310255, Discussion on the DRX enhancement, CMCC
46. R2-2310387, Discussion on XR-specific power saving, OPPO
47. R2-2310477, Discussion on various frame rates supported for XR-specific power, III
48. R2-2310666, XR-specific power saving enhancement, Google Inc.
49. R2-2310686, DRX enhancements for XR, Nokia, Nokia Shanghai Bell
50. R2-2310787, Discussion on DRX enhancements for XR, China Telecom Corporation Ltd.
51. R2-2310929, Remaining issues for C-DRX in XR, MediaTek Inc
52. R2-2311029, Discussion on XR-specific power saving, Ericsson
53. R2-2309487, BSR enhancements for XR, Qualcomm Incorporated
54. R2-2309488, Delay status reporting for XR, Qualcomm Incorporated
55. R2-2309593, Discussion on Delay status report, CANON Research Centre France
56. R2-2309594, Detailed Buffer Size table design for XR, Futurewei
57. R2-2309595, Detailed DSR MAC CE design for XR, Futurewei
58. R2-2309706, Consideration on DSR and BSR, CATT
59. R2-2309727, Discussion on BSR enhancements for XR, vivo
60. R2-2309728, Discussion on DSR for XR, vivo
61. R2-2309800, Discussion on delay status reporting for XR, NEC Corporation
62. R2-2309898, Discussions on delay information reporting, Fujitsu
63. R2-2309910, Discussion on delay status reporting for XR, FGI
64. R2-2309965, Discussion on BSR enhancements for XR, Lenovo
65. R2-2310047, Discussing on BSR enhancements for XR capacity, Xiaomi Communications
66. R2-2310068, Discussion on BSR and DSR enhancements for XR, Honor
67. R2-2310109, BSR enhancements for XR, ZTE Corporation, Sanechips
68. R2-2310140, Delay status reporting for XR, Lenovo
69. R2-2310152, New BSR trigger due to UE’s discard operation, Intel Corporation
70. R2-2310238, Discussion on Rel-18 XR-specified remaining time and BSR table, CMCC
71. R2-2310331, BSR Enhancemenrts for XR, Apple
72. R2-2310332, Delay Status Reporting for XR, Apple
73. R2-2310388, Discussion on BSR enhancement for XR, OPPO
74. R2-2310470, Discussion on BSR enhancements for XR, III
75. R2-2310536, Discussion on DSR enhancements for XR, Huawei, HiSilicon
76. R2-2310601, Discussion on BSR enhancement with new BS Table, LG Electronics Inc.
77. R2-2310602, Discussion on delay status report, LG Electronics Inc.
78. R2-2310659, Details of the New BS table, NEC
79. R2-2310683, Discussion on delay status report for XR, Google Inc.
80. R2-2310687, BSR enhancements for XR, Nokia, Nokia Shanghai Bell
81. R2-2310765, Some considerations on BSR enhancements for XR, Sony
82. R2-2310788, Remaining issues on delay status reporting, China Telecom Corporation Ltd.
83. R2-2310944, DSR for XR, MediaTek Inc
84. R2-2310989, Buffer status reporting for XR, Interdigital Inc.
85. R2-2310990, Remaining time reporting for XR, Interdigital Inc.
86. R2-2311030, Discussion on BSR enhancements for XR, Ericsson
87. R2-2311073, Discussion on BSR enhancements for XR, Samsung
88. R2-2311104, Discussion on delay status reporting for XR, DENSO CORPORATION
89. R2-2311139, Discussion on DSR, TCL
90. R2-2309489, A PDU discard procedure based on buffer threshold, Qualcomm Incorporated
91. R2-2309707, PDCP discard notifications to receiving PDCP entity, CATT, CANON Research Centre France
92. R2-2309708, Leftover Issues on Discard, CATT
93. R2-2309729, Discussion on discard operation for XR, vivo
94. R2-2309848, PSI based PDCP discard mechanism, LG Electronics, CATT, Vivo, Fujitsu, III, Samsung, LG Uplus, ZTE, KDDI, Google, Intel Corporation
95. R2-2309879, Discard Operation for XR, Nokia, Nokia Shanghai Bell
96. R2-2309899, Discussions on PDU discard based on PDU Set Importance, Fujitsu
97. R2-2310008, Discussion on XR discard operation, Spreadtrum Communications
98. R2-2310043, Discussing on PDU discarding of XR traffic, Xiaomi Communications
99. R2-2310045, Discussing on PDU discarding of XR traffic, Xiaomi Communications
100. R2-2310089, Discard Operation for XR, Samsung R&D Institute India
101. R2-2310111, PDU discard for XR, ZTE Corporation, Sanechips
102. R2-2310141, PSI based discarding operation for XR, Lenovo
103. R2-2310151, Support of discard at lower layers, Intel Corporation
104. R2-2310175, Discussion on PDU Discard Operation for XR, Meta
105. R2-2310333, Views on Threshold Signaling for PSI-based Discarding Mechanism, Apple, Huawei, HiSilicon, ITRI, Lenovo, NTT Docomo, Qualcomm
106. R2-2310389, Discussion on discard operation for XR, OPPO
107. R2-2310433, Buffer Size Threshold-based Discard for XR, CMCC
108. R2-2310534, Discussion on Timer-based PDU set discarding for XR traffic, Huawei, HiSilicon, Spreadtrum Communications, Apple, Lenovo, OPPO, Canon, NTT DOCOMO INC., ITRI, NEC, InterDigital
109. R2-2310576, UL PSI Values, Discard and Thresholds vs Timers, Vodafone GmbH
110. R2-2310660, An updated Timer-based Solution, NEC
111. R2-2310681, Discussion on PSI-based discard for XR, Google Inc.
112. R2-2310766, Discard timer-based PSI discard, Sony
113. R2-2310922, On PSI and discard, MediaTek Inc
114. R2-2310938, Discard operation for XR, InterDigital
115. R2-2311027, Discussion on PSI-based discarding, Ericsson
116. R2-2311138, Discussion on PSI-based uplink discard, TCL
117. R2-2311141, Remaining issues in PSI-based SDU discarding, Futurewei
118. R2-2311142, Implications of PDU Set discarding and potential solutions, Futurewei
119. R2-2309490, Configured grant enhancements for XR, Qualcomm Incorporated
120. R2-2309523, Configured Grant enhancements for XR, Xiaomi
121. R2-2309642, Discussion on Multi-PUSCH CG, Huawei, HiSilicon
122. R2-2309709, Leftover issues on configured grant, CATT
123. R2-2309900, Discussions on unused CG PUSCH transmission occasions, Fujitsu
124. R2-2309967, Discussion on CG enhancements, Samsung
125. R2-2310112, Configured Grant enhancements for XR, ZTE Corporation, Sanechips
126. R2-2310142, CG enhancements for XR communications, Lenovo
127. R2-2310239, Discussion on Rel-18 XR-specified CG enhancement, CMCC
128. R2-2310334, UTO for Multi-PUSCH Configured Grant, Apple
129. R2-2310390, Discussion on configured grant enhancement for XR, OPPO
130. R2-2310471, Discussion on Configured Grant enhancements for XR, III
131. R2-2310603, Discussion on CG enhancement for XR, LG Electronics Inc.
132. R2-2310661, CG Enhancement for XR, NEC
133. R2-2310665, On Configured Grant enhancements for XR, Google Inc.
134. R2-2310688, CG enhancements for XR, Nokia, Nokia Shanghai Bell
135. R2-2310767, Configured Grant enhancements for XR, Sony
136. R2-2310939, Configured Grant enhancements for XR, InterDigital
137. R2-2311137, Discussion on multiple-PUSCHs CG, TCL
138. R2-2311246, Configured Grant enhancements for XR, Ericsson
139. R2-2309402, RAN2 Handbook, MCC
140. R2-2309491, UE capabilities for XR services, Qualcomm Incorporated
141. R2-2309524, UE capabilities for XR, Xiaomi
142. R2-2309730, Discussion on UE capability for XR, vivo
143. R2-2309880, UE capabilities for Rel-18 XR, Nokia, Nokia Shanghai Bell
144. R2-2309968, UE capability for XR, Samsung
145. R2-2310113, UE capabilities for XR, ZTE Corporation, Sanechips
146. R2-2310148, Summary on UE Capabilities for Rel-18 XR WI, Intel Corporation, Qualcomm Incorporated, Xiaomi, InterDigital, Nokia, Nokia Shanghai Bell, vivo, OPPO, Huawei, HiSilicon, Ericsson
147. R2-2310149, UE Capabilities for Rel-18 XR WI, Intel Corporation
148. R2-2310150, UE Capabilities for Rel-18 XR WI, Intel Corporation
149. R2-2310335, UE Capabilities for XR, Apple
150. R2-2310391, Discussion on UE capabilities for XR, OPPO
151. R2-2310730, Discussion on UE capabilities for XR, Huawei, HiSilicon
152. R2-2311031, Discussion on UE capabilities for XR, Ericsson
153. R2-2311111, UE Capabilities for Rel-18 XR, Meta
154. R2-2311587, [Draft] LS on XR awareness, vivo
155. R2-2311590, LS on XR awareness, RAN2

**RAN2#124**

1. R2-2313626, UE capabilities for Rel-18 XR WI, Intel Corporation
2. R2-2313627, UE capabilities for Rel-18 XR WI, Intel Corporation
3. R2-2311709, Reply LS on XR capacity enhancements (R1-2310502; contact: MediaTek), RAN1
4. R2-2311728, Provisioning separate DL and UL PDU Set QoS Parameters to NG-RAN (R3-235890; contact: Qualcomm), RAN3
5. R2-2311768, Summary of discussion on open issues in TS 38.321, Qualcomm Incorporated
6. R2-2311769, Introduction of XR enhancements, Qualcomm
7. R2-2311903, Introduction of XR Enhancements, vivo
8. R2-2311904, Summary of discussion on open issues in RLC running CR, vivo
9. R2-2312133, Work Plan for Rel-18 WI on XR Enhancements for NR, Nokia, Qualcomm (Rapporteurs)
10. R2-2312134, SA2 Status for XR, Nokia, Qualcomm (Rapporteurs)
11. R2-2312135, SA4 Status for XR, Nokia, Qualcomm (Rapporteurs)
12. R2-2312136, Introduction of XR Enhancements, Nokia, Qualcomm (Rapporteurs)
13. R2-2312137, XR Agreements, Nokia, Qualcomm (Rapporteurs)
14. R2-2312138, XR Open Issues, Nokia, Huawei, Intel, LG, Qualcomm, Vivo (Rapporteurs)
15. R2-2312155, UE capabilities for Rel-18 XR WI, Intel Corporation
16. R2-2312156, UE capabilities for Rel-18 XR WI, Intel Corporation
17. R2-2312192, Introduction of XR Enhancements, LG Electronics Inc. (Rapporteur)
18. R2-2312193, Summary of [Post123bis][026][XR] Comments on PDCP running CR, LG Electronics Inc. (Rapporteur)
19. R2-2312603, Introduction of XR enhancements into TS 38.331, Huawei, HiSilicon
20. R2-2312604, Report of [POST123bis][023][XR] 38.331 Running CR (proposals on open issues for RRC CR of XR enhancements WI), Huawei, HiSilicon
21. R2-2313348, Discussion on remaining issues of MAC CR for XR, China Telecom
22. R2-2313518, Introduction of XR enhancements into TS 38.331, Huawei, HiSilicon
23. R2-2313588, Introduction of XR enhancements, Qualcomm
24. R2-2311945, UAI reporting for non-converged measurements, CATT
25. R2-2311980, Discussion on XR awareness, Xiaomi Communications
26. R2-2312003, Discussions on uplink End of Data Burst indication for XR, Fujitsu
27. R2-2312039, Remaing issues of XR awareness, NEC
28. R2-2312085, Open issues for XR awareness, ZTE Corporation, Sanechips
29. R2-2312139, Remaining Issues in Assistance Information, Nokia, Nokia Shanghai Bell
30. R2-2312158, PDU Set identification: definition and default behaviour, Intel Corporation
31. R2-2312327, Remaining Issues on XR Awareness, Apple
32. R2-2312470, Discussion on PDU sets and data burst awareness in RAN, Lenovo
33. R2-2312534, On XR awareness, Google Inc.
34. R2-2312601, Discussion on XR assistance information for UL, Huawei, HiSilicon
35. R2-2313097, Stage-3 Details on XR - awareness, Ericsson
36. R2-2313207, Remaining Issues of UAI for XR, CMCC
37. R2-2311979, Discussing on XR-specific power saving, Xiaomi Communications
38. R2-2312086, XR-Specific power saving enhancements, ZTE Corporation, Sanechips
39. R2-2312225, Remaining Issues on DRX, Nokia, Nokia Shanghai Bell
40. R2-2312249, Remaining issues for C-DRX enhancements for XR, Huawei, HiSilicon, Ericsson
41. R2-2312390, Remaining issues on DRX enhancement for XR, LG Electronics Inc.
42. R2-2312471, Discussion of DRX enhancement, Lenovo
43. R2-2312510, Remaining issues of C-DRX enhancement for XR, NEC Corporation
44. R2-2312541, XR-specific power saving enhancement, Google Inc.
45. R2-2312657, Discussion on the DRX enhancement, CMCC
46. R2-2312733, Discussion on remaining issue of power saving scheme for XR, Samsung
47. R2-2312867, Remaining issues for C-DRX in XR, MediaTek Inc.
48. R2-2313095, Discussion on XR-specific power saving, Ericsson
49. R2-2313349, Non-integer DRX cycle preference indication, China Telecom
50. R2-2313440, Discussion on various frame rates supported for XR-specific power saving, III
51. R2-2311770, Remaining issues on BSR, Qualcomm Incorporated
52. R2-2311771, Remaining issues on DSR, Qualcomm Incorporated
53. R2-2311825, Discussion on Delay status report, CANON Research Centre France
54. R2-2311905, Discussion on DSR contents, vivo
55. R2-2311906, Discussion on remaining issues on BSR for XR, vivo
56. R2-2311907, Discussion on DSR transmission, vivo
57. R2-2311947, Consideration on BSR, CATT
58. R2-2311948, Consideration on DSR, CATT
59. R2-2311977, Discussing on DSR enhancements for XR capacity, Xiaomi Communications
60. R2-2312004, Discussions on DSR, Fujitsu
61. R2-2312087, Open issues for BSR/DSR enhancements for XR, ZTE Corporation, Sanechips
62. R2-2312097, Delay status reporting for XR, Lenovo
63. R2-2312226, Remaining Issues on BSR and DSR, Nokia, Nokia Shanghai Bell
64. R2-2312328, Views on Open Issues of BSR Enhancements for XR, Apple
65. R2-2312329, Delay Status Reporting for XR, Apple
66. R2-2312400, Discussion on delay status reporting for XR, FGI
67. R2-2312414, Discussion on delay status reporting for XR, DENSO CORPORATION
68. R2-2312472, Discussion on BSR enhancements for XR, Lenovo
69. R2-2312508, Discussion on delay status reporting for XR, NEC Corporation
70. R2-2312589, Discussion on BSR enhancement for XR, OPPO
71. R2-2312605, New BSR triggers and BSR MAC CE, NEC
72. R2-2312613, Discussion on delay status report for XR, Google Inc.
73. R2-2312668, Discussion on BSR and DSR enhancement for XR, CMCC
74. R2-2312992, Remaining issue for DSR MAC CE, MediaTek Inc.
75. R2-2313093, Discussion on BSR enhancements for XR, Ericsson
76. R2-2313174, BSR enhancements for XR, InterDigital
77. R2-2313267, Discussion on BSR enhancements for XR, III
78. R2-2313290, Remaining issues on Delay Status report, LG Electronics Inc.
79. R2-2313413, Discussion on DSR and BSR enhancements for XR, Huawei, HiSilicon
80. R2-2313421, Remaining issues on DSR, Futurewei
81. R2-2313422, Remaining issues on the new BS table and Refined BSR MAC CEs, Futurewei
82. R2-2313434, Discussion on BSR enhancements for XR, Samsung
83. R2-2313435, Discussion on DSR for XR, Samsung
84. R2-2313459, Discussion on BS Table for one LCG with data available, LG Electronics Inc.
85. R2-2313541, Remaining issues on BSR enhancements for XR, China Telecom
86. R2-2313560, Remaining issues on BSR, Qualcomm Incorporated
87. R2-2311772, Remaining issues on PDU discard, Qualcomm Incorporated
88. R2-2311824, Discussion on packet discarding for XR, CANON Research Centre France
89. R2-2311908, Discussion on discard operation for XR, vivo
90. R2-2311909, Enhancement on Transmit/Receipt Operation for PDCP and RLC, vivo
91. R2-2311946, PDCP discard notifications to receiving PDCP entity, CATT, CANON Research Centre France, Nokia, Nokia Shanghai Bell
92. R2-2311949, Details of Discard Operation, CATT
93. R2-2311978, Discussing on PDU discarding of XR traffic, Xiaomi Communications
94. R2-2312005, Remaining issues on PDU Set discard, Fujitsu
95. R2-2312088, Discard operation for XR, ZTE Corporation, Sanechips
96. R2-2312098, Remaining details on discarding operation for XR, Lenovo
97. R2-2312140, Remaining Issues in Discard Operation, Nokia, Nokia Shanghai Bell
98. R2-2312159, Further details on open topics of discard enhancements, Intel Corporation
99. R2-2312330, Remaining Issues on Discard Operations for XR, Apple
100. R2-2312564, XR discard notification, Spreadtrum Communications
101. R2-2312590, Discussion on discard operation for XR, OPPO
102. R2-2312606, Discard operation for XR, NEC
103. R2-2312612, Discussion on discard operation for XR, Google Inc.
104. R2-2312717, Considerations on Discard Operation for XR, Samsung R&D Institute India
105. R2-2312839, Remaining issues related to discard, Sony
106. R2-2313096, Remaining issues on PSI and PDU Set discarding, Ericsson
107. R2-2313175, Discard operation for XR, InterDigital
108. R2-2313208, Discard operation for XR, CMCC
109. R2-2313293, Discussion on the discard for XR, LG Electronics Inc.
110. R2-2313295, Discussion on PDCP open issues, LG Electronics Inc.
111. R2-2313408, Remaining Issues on PDU Discard Operation for XR, Meta
112. R2-2313412, Discussion on PDU set discarding for XR traffic, Huawei, HiSilicon
113. R2-2313437, Open issues on discarding, Futurewei
114. R2-2313438, Introduction of signaling for notifying SDU discard, Futurewei
115. R2-2313549, Discussion on discard operation for XR, Google Inc.
116. R2-2313923, Report of [AT124][019] PDCP discard (CATT), CATT
117. R2-2313946, Need for PDCP discard notifications to receiving PDCP entity, LG Electronics Inc.
118. R2-2311773, Remaining issues on CG enhancements, Qualcomm Incorporated
119. R2-2311783, Configured Grant enhancements for XR, Xiaomi
120. R2-2311950, Leftover issues on configured grant, CATT
121. R2-2312006, Discussions on unused CG PUSCH transmission occasions, Fujitsu
122. R2-2312089, Configured Grant enhancements for XR, ZTE Corporation, Sanechips
123. R2-2312099, CG enhancements for XR communications, Lenovo
124. R2-2312227, Remaining issues on CG enhancements, Nokia, Nokia Shanghai Bell
125. R2-2312250, Discussion on RAN2 impacts of multi-PUSCH CG, Huawei, HiSilicon
126. R2-2312331, UTO-UCI for Multi-PUSCH Configured Grant, Apple
127. R2-2312537, On Configured Grant enhancements for XR, Google Inc.
128. R2-2312591, Discussion on configured grant enhancement for XR, OPPO
129. R2-2312607, Set UTO-UCI, NEC
130. R2-2312669, Discussion on CG enhancement for XR, CMCC
131. R2-2312693, Discussion on CG enhancements, Samsung
132. R2-2313269, Discussion on Configured Grant enhancements for XR, III
133. R2-2313302, Configured Grant enhancements for XR, Ericsson
134. R2-2313351, Discussion on configured grant enhancements for XR, China Telecom
135. R2-2313460, Remaining issues on CG enhancement for XR, LG Electronics Inc.
136. R2-2311784, UE capabilities for XR, Xiaomi
137. R2-2311910, Discussion on CG enhancement for XR, vivo
138. R2-2312090, UE capability aspects of XR, ZTE Corporation, Sanechips
139. R2-2312141, UE capabilities for Rel-18 XR, Nokia, Nokia Shanghai Bell
140. R2-2312157, Open topics on UE capabilities for Rel-18 XR WI, Intel Corporation
141. R2-2312332, Views on UE Capability for XR, Apple
142. R2-2312592, Discussion on UE capabilities for XR, OPPO
143. R2-2312602, Discussion on UE capabilities for XR, Huawei, HiSilicon
144. R2-2313094, Discussion on UE capabilities for XR, Ericsson
145. R2-2313409, UE Capabilities for Rel-18 XR, Meta

**RAN3#121bis**

1. R3-235027, LS Reply on Design of RTP Header Extension for PDU Set Handling, SA4(Lenovo)
2. R3-235124, (BL CR to 37.483) Introducing enhancement for NR XR, Samsung, Ericsson, Nokia, Nokia Shanghai Bell, ZTE
3. R3-235125, (BL CR to 38.300) for XR Enhancements, Qualcomm Inc, Ericsson, Nokia, Nokia Shanghai Bell, Huawei, ZTE
4. R3-235126, (BL CR to 38.413) Support for NR XR, Nokia, Nokia Shanghai Bell, Ericsson, China Telecom, ZTE
5. R3-235127, (XR BL CR to TS 38.415) Introduction of XR enhancements, ZTE, Ericsson, Nokia, Nokia Shanghai Bell, Qualcomm Inc
6. R3-235128, (BL CR to TS 38.423) Introduction of XR enhancement, Ericsson, ZTE
7. R3-235129, (BL CR to 38.425) Support for NR XR, CMCC, Nokia, Nokia Shanghai Bell, Ericsson, ZTE, Qualcomm Inc
8. R3-235130, (BL CR to 38.473) Support for NR XR, Huawei, Qualcomm Inc, Ericsson, China Telecom, Nokia, Nokia Shanghai Bell, ZTE
9. R3-235204, Discussion on the support of PDU Set handling, Samsung
10. R3-235205, [TP for BLCR TS 38.413 TS 37.483 TS 38.415] Introducing enhancement for NR XR, Samsung
11. R3-235206, [TP for BLCR TS 38.413, TS 38.423, TS 37.483] Introducing enhancement for NR XR ECN and discarding, Samsung
12. R3-235255, Discussion on User Plane Protocol for PDU Set Information, Lenovo, Ericsson
13. R3-235256, Discussion on PDU Set handling in non-homogenous cases, PDU Set based discard and data forwarding, Lenovo
14. R3-235257, Discussion on ECN marking for L4S, Lenovo
15. R3-235280, XR Enhancements for PDU Set Handling, Qualcomm Incorporated
16. R3-235281, RAN Enhancements for DL PDU Set Discarding and ECN marking, Qualcomm Incorporated
17. R3-235377, (TP to TS 38.413) Discussion on support of PDU Set Handling, ZTE
18. R3-235378, TP for XR BL CR to TS 38.415, ZTE
19. R3-235379, (TP to TS 38.415 and 38.413) Discussion on ECN marking and PDU Set discard, ZTE
20. R3-235423, (TP for NR\_XR\_enh BL CRs): Add PDU set parameters for support NR XR, Huawei
21. R3-235424, (TP for NR\_XR\_enh BL CR for TS38.413) Non-homogeneous PDU set handling and TSCAI handling, Huawei
22. R3-235425, (TP for NR\_XR\_enh BL CRs) Discussion on open issues for support NR XR, Huawei
23. R3-235457, Discussion on PDU set handling for XR, CATT
24. R3-235458, Discussion on ECN Marking and others for XR, CATT
25. R3-235459, (TP for 38.413 and 37.483) Support Enhancements on NR XR, CATT
26. R3-235519, Work Plan for Rel-18 on XR Enhancements for NR, Nokia, Qualcomm (Rapporteurs)
27. R3-235520, Discussion on support for PDU Set based QoS handling, Nokia, Nokia Shanghai Bell
28. R3-235521, (TP for TS 38.413 BL CR) Support for NR XR, Nokia, Nokia Shanghai Bell
29. R3-235522, Discussion on ECN marking for NR XR, Nokia, Nokia Shanghai Bell
30. R3-235531, Discussion on open issues related to PDU Set handling, LG Electronics Inc.
31. R3-235586, Discussion on XR PDU Set Handling, Ericsson
32. R3-235587, (TPs to TSes 38.413 and 38.423 BL CRs): addition of NG-RAN capability support information to SMF, Ericsson
33. R3-235588, [Draft] Reply LS to S2-2308252 = R3-233735 on Non-homogeneous deployment of PDU Set based handling (to: SA2, CT4; cc: RAN2; contact: Ericsson), Ericsson
34. R3-235639, (TPs for TS 38.300 and TS 38.413) PDU set based handling for XR, Xiaomi
35. R3-235646, (TP for TS 38.425) Support for NR XR, CMCC, Nokia, Nokia Shanghai Bell, ZTE
36. R3-235647, Discussion on PDU Set handling, CMCC
37. R3-235649, Discussion on XR Enhancement in Split Architecture, China Telecom
38. R3-235650, (TP for BL CR for TS 38.401) Introduction of XR enhancements, China Telecom
39. R3-235683, Support for L4S in NG-RAN, Ericsson, Orange, Deutsche Telekom, AT&T, Verizon Wireless
40. R3-235684, (TP for XR CR for TS 38.300) ECN Marking for L4S, Ericsson, Orange, Deutsche Telekom, AT&T, Verizon Wireless
41. R3-235685, (TP for XR CR for TS 38.415) ECN Marking for L4S, Ericsson, Orange, Deutsche Telekom, AT&T, Verizon Wireless
42. R3-235686, (TP for XR CR for TS 38.425) ECN Marking for L4S, Ericsson, Orange, Deutsche Telekom, AT&T, Verizon Wireless
43. R3-235687, (TP for XR CR for TS 38.473) ECN Marking for L4S, Ericsson, Orange, Deutsche Telekom, AT&T, Verizon Wireless
44. R3-235688, (TP for XR CR for TS 38.413) ECN Marking for L4S, Ericsson, Orange, Deutsche Telekom, AT&T, Verizon Wireless
45. R3-235719, (XR BL CR to 38.423) Introduction of XR enhancement, Ericsson, ZTE
46. R3-235722, Summary of offline discussion CB PDUSethandling, Ericsson
47. R3-235723, Summary of offline discussion CB XR\_ECNMarking, ZTE
48. R3-235802, (TP for BL CR TS 38.413) Addition of UL PDU Set QoS parameters, Huawei, Ericsson, Qualcomm
49. R3-235824, [TP for BLCR TS 37.483] Addition of UL PDU Set QoS parameters, Samsung, Ericsson
50. R3-235825, [TP for BLCR TS 38.423] Addition of UL PDU Set QoS parameters, ZTE, Ericsson
51. R3-235826, [TP for BLCR TS 38.473] Addition of UL PDU Set QoS parameters, Nokia, Ericsson
52. R3-235831, (TP to TS 38.415) support for ECN Marking, ZTE
53. R3-235832, (TP to BL CR TS 38.473) support for ECN Marking, Huawei
54. R3-235833, (TP to BL CR TS 37.483) support for ECN Marking, Samsung
55. R3-235841, (TP to BL CR TS 38.425) support for ECN Marking, CMCC, ZTE
56. R3-235842, (TP to BL CR TS 38.423) support for ECN Marking, Ericsson, ZTE
57. R3-235843, TP to BL CR TS 38.413) support for ECN Marking, Nokia, Nokia Shanghai Bell, ZTE
58. R3-235874, Draft LS on provisioning separate DL and UL PDU Set QoS Parameters to NG-RAN (to: SA2; cc: RAN2; contact: Qualcomm), Qualcomm, Ericsson
59. R3-235875, (TP for NR\_XR\_enh BL CR for TS 38.300) Support for XR Enhancements, Qualcomm Incorporated, Nokia, Nokia Shanghai Bell, Ericsson, Huawei, ZTE
60. R3-235876, (TP for XR CR for TS 38.423) ECN Marking for L4S activation/deactivation procedures, Ericsson
61. R3-235890, LS on provisioning separate DL and UL PDU Set QoS Parameters to NG-RAN (to: SA2; cc: RAN2; contact: Qualcomm), RAN3
62. R3-235891, (TP for NR\_XR\_enh BL CR for TS 38.300) Support for XR Enhancements, Qualcomm Incorporated, Nokia, Nokia Shanghai Bell, Ericsson, Huawei, ZTE, Samsung
63. R3-235896, (TP to BL CR TS 37.483) support for ECN Marking, Samsung
64. R3-235936, (TP to BL CR TS 38.423) support for ECN Marking, Ericsson, ZTE
65. R3-235937, TP to BL CR TS 38.413) support for ECN Marking, Nokia, Nokia Shanghai Bell, ZTE, Ericsson
66. R3-235938, (TP to BL CR TS 38.473) support for ECN Marking, Huawei, Samsung
67. R3-235939, (TP to BL CR TS 37.483) support for ECN Marking, Samsung, Ericsson
68. R3-236001, (BL CR to 38.300) for XR Enhancements, Qualcomm Inc, Ericsson, Nokia, Nokia Shanghai Bell, Huawei, ZTE
69. R3-236002, (BL CR to 38.413) Support for NR XR, Nokia, Nokia Shanghai Bell, Ericsson, China Telecom, ZTE
70. R3-236003, (XR BL CR to TS 38.423) Introduction of XR enhancement, Ericsson, ZTE, Qualcomm Inc., Nokia, Nokia Shanghai Bell
71. R3-236004, (BL CR to 38.473) Support for NR XR, Huawei, Qualcomm Inc, Ericsson, China Telecom, Nokia, Nokia Shanghai Bell, ZTE
72. R3-236005, (BLCR to 37.483) Introducing enhancement for NR XR, Samsung, Ericsson, Nokia, Nokia Shanghai Bell, ZTE
73. R3-236006, (XR BL CR to TS 38.415) Introduction of XR enhancements, ZTE, Ericsson, Nokia, Nokia Shanghai Bell, Qualcomm Inc
74. R3-236007, (BL CR to 38.425) Support for NR XR, CMCC, Nokia, Nokia Shanghai Bell, Ericsson, ZTE, Qualcomm Inc

**RAN3#122**

1. R3-237092, (BL CR to 38.300) for XR Enhancements, Qualcomm Incorporated, Nokia, Nokia Shanghai Bell, Ericsson, Huawei, ZTE, Samsung
2. R3-237093, (BL CR to 38.413) Support for NR XR, Nokia, Nokia Shanghai Bell, Ericsson, China Telecom, ZTE
3. R3-237094, (XR BL CR to TS 38.423) Introduction of XR enhancement, Ericsson, ZTE, Qualcomm Inc., Nokia, Nokia Shanghai Bell
4. R3-237095, (BL CR to 38.473) Support for NR XR, Huawei, Qualcomm Inc, Ericsson, China Telecom, Nokia, Nokia Shanghai Bell, ZTE
5. R3-237096, (BLCR to 37.483) Introducing enhancement for NR XR, Samsung, Ericsson, Nokia, Nokia Shanghai Bell, ZTE
6. R3-237097, (XR BL CR to TS 38.415) Introduction of XR enhancements, ZTE, Ericsson, Nokia, Nokia Shanghai Bell, Qualcomm Inc
7. R3-237098, (BL CR to 38.425) Support for NR XR, CMCC, Nokia, Nokia Shanghai Bell, Ericsson, ZTE, Qualcomm Inc
8. R3-237261, XR Enhancements for PDU Set Handling, Qualcomm Incorporated
9. R3-237262, RAN Signaling Enhancements for Congestion Management, Qualcomm Incorporated
10. R3-237331, (TP to BL CR for 38.413, 37.483, 38.423) Discussion on the support of PDU Set handling, Samsung
11. R3-237332, (TP to BL CR for TS 37.483) Addition of UL PDU Set QoS parameters, Samsung, Ericsson, Nokia, Nokia Shanghai Bell, Qualcomm Inc., Xiaomi, China Telecom
12. R3-237333, (TP to BL CR for 38.413, 38.423, 37.483) Introducing enhancement for NR XR ECN and discarding, Samsung
13. R3-237340, (BL CR to 38.425) Support for NR XR, CMCC, Nokia, Nokia Shanghai Bell, Ericsson, ZTE, Qualcomm Inc
14. R3-237359, (TP for NR\_XR\_enh BL CRs for TS38.413/38.423/38.473/38.415):PDU set handling for support NR XR, Huawei
15. R3-237360, (TP for NR\_XR\_enh BL CRs forTS 38.413/38.423/37.483/38.473/ 38.415/38.425): Discussion on open issues for support NR XR, Huawei
16. R3-237390, (TP for TS 38.423) Introduction of Direction Information for PDU Set QoS Parameters, Xiaomi, Ericsson, Qualcomm Inc., Nokia, Nokia Shanghai Bell, Samsung, China Telecom
17. R3-237391, (TP for TS 38.300) Non-homogenous support of PDU set based QoS handling in NG-RAN, Xiaomi, Nokia, Nokia Shanghai Bell, ZTE
18. R3-237392, (TPs for 38.473, 37.483 and 38.413) PDU set based QoS handling for XR, Xiaomi
19. R3-237394, Discussion on open issues for ECN marking and others, LG Electronics Inc.
20. R3-237421, (TP to BLCR for TS 38.415) User Plane Protocol for PDU Set Information, Lenovo, Ericsson
21. R3-237422, On ECN Marking, PDCP Discard and Data Forwarding, Lenovo
22. R3-237438, (TP for TS 38.413 BL CR) Discussion on support for PDU Set based QoS handling, Nokia, Nokia Shanghai Bell
23. R3-237439, Discussion on ECN marking and PDU Set Discard for NR XR, Nokia, Nokia Shanghai Bell
24. R3-237440, TP for TS38.413 BL CR, Nokia, Nokia Shanghai Bell, CMCC, ZTE
25. R3-237441, TP for TS38.423 BL CR, Nokia, Nokia Shanghai Bell, CMCC, ZTE
26. R3-237442, TP for TS38.473 BL CR, Nokia, Nokia Shanghai Bell, CMCC, ZTE
27. R3-237470, Support for L4S in NG-RAN, Ericsson, Deutsche Telekom, BT, T-Mobile USA, Charter, Vodafone, Apple, Orange, Verizon Wireless, Telstra, Qualcomm
28. R3-237471, (TP for NR\_XR\_enh BL CR for TS37.483) Support for ECN Marking, Ericsson, Deutsche Telekom, BT, T-Mobile USA, Charter, Vodafone, Apple, Orange, Verizon Wireless, Telstra, Qualcomm
29. R3-237472, (TP for NR\_XR\_enh BL CR for TS38.413) Support for ECN Marking, Ericsson, Deutsche Telekom, BT, T-Mobile USA, Charter, Vodafone, Apple, Orange, Verizon Wireless, Telstra, Qualcomm
30. R3-237473, (TP for NR\_XR\_enh BL CR for TS38.415) Support for ECN Marking, Ericsson, Deutsche Telekom, BT, T-Mobile USA, Charter, Vodafone, Apple, Orange, Verizon Wireless, Telstra, Qualcomm
31. R3-237474, (TP for NR\_XR\_enh BL CR for TS38.423) Support for ECN Marking, Ericsson, Deutsche Telekom, BT, T-Mobile USA, Charter, Vodafone, Apple, Orange, Verizon Wireless, Telstra, Qualcomm
32. R3-237475, (TP for NR\_XR\_enh BL CR for TS38.425) Support for ECN Marking, Ericsson, Deutsche Telekom, BT, T-Mobile USA, Charter, Vodafone, Apple, Orange, Verizon Wireless, Telstra, Qualcomm
33. R3-237476, (TP for NR\_XR\_enh BL CR for TS38.473) Support for ECN Marking, Ericsson, Deutsche Telekom, BT, T-Mobile USA, Charter, Vodafone, Apple, Orange, Verizon Wireless, Telstra, Qualcomm
34. R3-237539, (TP to F1-AP BL CR): introduction of UL UE XR Traffic assistance Information, Ericsson
35. R3-237540, (TP to NG-AP BL CR): introduction of Direction Information for PDU Set QoS Parameters, Ericsson, Qualcomm Inc., Nokia, Nokia Shanghai Bell, Samsung, Xiaomi, China Telecom
36. R3-237541, LS on defining new GTP-U Extension Header for PDU Set Information, Ericsson, lenovo
37. R3-237591, (TP for XR 38.415 and 38.425) Discussion on PDU set handling for XR, CATT
38. R3-237592, Discussion on ECN Marking and others for XR, CATT
39. R3-237624, Discussion on support of PDU Set Handling, ZTE
40. R3-237625, (TP to BL CR TS 38.415) Support for XR UP design using existing frame, ZTE, Nokia, Nokia Shanghai Bell, China Telecom, China Unicom, CMCC
41. R3-237626, (TP to BL CR TS 38.415) Support for XR UP design using new container, ZTE, Ericsson, China Unicom, China Telecom
42. R3-237627, (TP to BL CR TS 38.410) Support for XR UP design using new container, ZTE, Ericsson, China Unicom, China Telecom
43. R3-237628, (TP to BL CR TS 38.420) Support for XR UP design using new container, ZTE, Ericsson, China Unicom, China Telecom
44. R3-237629, (TP to BL CR TS 38.470) Support for XR UP design using new container, ZTE, Ericsson, China Unicom, China Telecom
45. R3-237630, Discussion on ECN marking and PDU Set discard, ZTE
46. R3-237631, (TP to BL CR TS 38.415) support for ECN Marking, ZTE, Nokia, Nokia Shanghai Bell, China Telecom, China Unicom, CMCC
47. R3-237632, Enhancement for PDU Set Discard Operation, China Telecom
48. R3-237633, Discussion on XR Enhancement in Split Architecture, China Telecom
49. R3-237677, (TP for TS38.425) Support for XR PDU Set Handling, CMCC, Nokia, Nokia Shanghai Bell, Huawei, ZTE
50. R3-237678, Discussion on PDU Set handling, CMCC
51. R3-237679, (TP for TS38.425) Support for ECN marking, CMCC, Nokia, Nokia Shanghai Bell, ZTE
52. R3-237680, Discussion on ECN marking and congestion exposure, CMCC
53. R3-237774, (XR BL CR to TS 38.423) Introduction of XR enhancement, Ericsson, ZTE, Qualcomm Inc., Nokia, Nokia Shanghai Bell, China Telecom
54. R3-237775, (BL CR to 38.473) Support for NR XR, Huawei, Qualcomm Inc, Ericsson, China Telecom, Nokia, Nokia Shanghai Bell, ZTE
55. R3-237776, (XR BL CR to TS 38.415) Introduction of XR enhancements, ZTE, Ericsson, Nokia, Nokia Shanghai Bell, Qualcomm Inc
56. R3-237777, (BL CR to 38.300) for XR Enhancements, Qualcomm Incorporated, Nokia, Nokia Shanghai Bell, Ericsson, Huawei, ZTE, Samsung
57. R3-237840, (TP for TS 38.423 BL CR) support for PDU Set based QoS handling, Huawei, Ericsson, ZTE, Lenovo, Samsung, Nokia, Nokia Shanghai Bell, LGE
58. R3-237841, (TP for TS 38.413 BL CR) support for PDU Set based QoS handling, Nokia, Nokia Shanghai Bell, Ericsson, ZTE, Huawei, Samsung
59. R3-237842, (TP for TS 37.483 BL CR) support for PDU Set based QoS handling, Samsung, Ericsson, ZTE, Nokia, Nokia Shanghai Bell, Huawei, Lenovo
60. R3-237843, (TP for TS 38.300 BL) Support for NR XR, Xiaomi, Nokia, Nokia Shanghai Bell, ZTE, Huawei, Ericsson, Qualcomm Inc.
61. R3-237844, (TP for BLCR to TS 38.415) On User Plane Protocol for PDU Set Information, Lenovo, Ericsson, Samsung, Nokia, Nokia Shanghai Bell, ZTE, Huawei
62. R3-237845, LS on defining new GTP-U Extension Header for PDU Set related information, RAN3(Ericsson)
63. R3-237846, (TP to BL CR TS 38.410) Support for XR UP design using new container, ZTE, Ericsson, China Unicom, China Telecom, Nokia, Nokia Shanghai Bell
64. R3-237847, (TP to BL CR TS 38.470) Support for XR UP design using new container, ZTE, Ericsson, China Unicom, China Telecom, Nokia, Nokia Shanghai Bell, Lenovo
65. R3-237848, (TP for TS38.425) Support for XR PDU Set Handling, CMCC, ZTE, Nokia, Nokia Shanghai Bell, Huawei
66. R3-237849, (TP for TS38.420) Support for XR PDU Set Handling, CMCC, Lenovo, Nokia, Nokia Shanghai Bell, ZTE, Ericsson
67. R3-237850, (TP to BL CR TS 38.473) Support for UL jitter, Xiaomi
68. R3-237851, (TP to BL CR TS 38.473) Support for N6 jitter, Huawei, Lenovo, ZTE, Nokia, Nokia Shanghai Bell
69. R3-237922, (TP to BL CR TS 38.415) support for ECN Marking, ZTE, Nokia, Nokia Shanghai Bell, China Telecom, China Unicom, CMCC, Ericsson
70. R3-237936, (TP to BL CR for 37.483) Support for ECN Marking, Samsung, Nokia, Nokia Shanghai Bell, ZTE, Ericsson
71. R3-237938, (TP for NR\_XR\_enh BL CR for TS38.423) Support for ECN Marking, Ericsson, Deutsche Telekom, BT, T-Mobile USA, Charter, Vodafone, Apple, Orange, AT&T, Verizon Wireless, Telstra, Qualcomm, ZTE, Nokia, Nokia Shanghai Bell, Huawei, Samsung
72. R3-237966, (TP for NR\_XR\_enh BL CR for TS38.473) ECN marking for L4S and congestion monitoring, Huawei, Ericsson, Samsung, ZTE, Nokia, Nokia Shanghai Bell
73. R3-237969, (TP for TS38.413 BL CR) Support for ECN marking, Nokia, Nokia Shanghai Bell, CMCC, ZTE, Ericsson, LGE, Huawei, Samsung
74. R3-237973, (TP for TS38.425) Support for ECN marking, CMCC, Nokia, Nokia Shanghai Bell, ZTE
75. R3-238032, (TP for TS 38.300 BL) Support for NR XR, Xiaomi, Nokia, Nokia Shanghai Bell, ZTE, Huawei, Ericsson, Qualcomm Inc., Samsung
76. R3-238123, (BLCR to 37.483) Introducing enhancement for NR XR, Samsung, Ericsson, Nokia, Nokia Shanghai Bell, ZTE
77. R3-238124, (BL CR to 38.300) for XR Enhancements, Qualcomm Incorporated, Nokia, Nokia Shanghai Bell, Ericsson, Huawei, ZTE, Samsung
78. R3-238125, (BL CR to 38.410) Support for XR UP design using new container, ZTE, Ericsson, China Unicom, China Telecom, Nokia, Nokia Shanghai Bell
79. R3-238126, (BL CR to 38.413) Support for NR XR, Nokia, Nokia Shanghai Bell, Ericsson, China Telecom, ZTE
80. R3-238127, (XR BL CR to TS 38.415) Introduction of XR enhancements, ZTE, Ericsson, Nokia, Nokia Shanghai Bell, Qualcomm Inc
81. R3-238128, (BL CR to 38.420) Support for XR PDU Set Handling, Lenovo, CMCC,Nokia, Nokia Shanghai Bell, ZTE, Ericsson
82. R3-238129, (XR BL CR to TS 38.423) Introduction of XR enhancement, Ericsson, ZTE, Qualcomm Inc., Nokia, Nokia Shanghai Bell, China Telecom
83. R3-238130, (BL CR to 38.425) Support for NR XR, CMCC, Nokia, Nokia Shanghai Bell, Ericsson, ZTE, Qualcomm Inc
84. R3-238131, (BL CR to 38.470) Support for XR UP design using new container, China Telecom, ZTE, Ericsson, China Unicom, Nokia, Nokia Shanghai Bell, Lenovo
85. R3-238132, (BL CR to 38.473) Support for NR XR, Huawei, Qualcomm Inc, Ericsson, China Telecom, Nokia, Nokia Shanghai Bell, ZTE

**RAN1#114bis**

1. R1-2309081, PDCCH monitoring resumption after NACK, vivo
2. R1-2308825, Reply LS on XR capacity enhancements, RAN2, MediaTek
3. R1-2310501, Draft Reply LS on XR capacity enhancements, MediaTek
4. R1-2308882, Maintenance of CG enhancements for XR capacity, Huawei, HiSilicon
5. R1-2308936, Discussion on remaining issues of XR-specific capacity enhancements, FUTUREWEI
6. R1-2308992, Remaining issues on XR-specific capacity enhancements, Spreadtrum Communications
7. R1-2309082, Remaining issue on XR specific capacity enhancements, vivo
8. R1-2309180, Discussion on remaining issues of XR, ZTE, Sanechips
9. R1-2309273, Remaining issues on XR-specific capacity enhancements, NEC
10. R1-2309297, XR-specific capacity enhancements, Nokia, Nokia Shanghai Bell
11. R1-2309304, Remaining issues on XR-specific capacity enhancements, LG Electronics
12. R1-2309382, Maintenance issues on XR, Samsung
13. R1-2309463, Remaining issues on XR-specific capacity enhancements, xiaomi
14. R1-2309533, Design of Multiple CG Occasions and unused CG occasion feedback, CATT
15. R1-2309620, Discussion on XR specific capacity enhancements, OPPO
16. R1-2309678, Maintenance on XR enhancements for NR, CMCC
17. R1-2309732, XR specific capacity enhancements, TCL
18. R1-2309788, Remaining issues on UTO-UCI and HARQ-ACK collision handling, Sharp
19. R1-2309840, Remaining issues in XR-specific capacity enhancements, Apple
20. R1-2309908, Remaining Issues on XR capacity enhancements, Sony
21. R1-2309939, Remaining issues on XR-specific capacity enhancements, InterDigital, Inc.
22. R1-2310002, Remaining issues on XR enhancements, MediaTek Inc.
23. R1-2310148, Maintenance on XR Enhancements, Qualcomm Incorporated
24. R1-2310255, On Maintenance of XR enhancements for NR, Ericsson
25. R1-2310424, Moderator Summary#1 - Maintenance of XR Enhancements, Moderator (Ericsson)
26. R1-2310425, Moderator Summary#2 - Maintenance of XR Enhancements, Moderator (Ericsson)

**RAN1#115**

1. R1-2310832, Remaining issues of XR-specific capacity enhancements, FUTUREWEI
2. R1-2310995, Discussion on remaining issues of XR, ZTE, Sanechips
3. R1-2311104, Remaining issue on XR specific capacity enhancements, vivo
4. R1-2311273, Remaining issues on XR specific capacity enhancements, OPPO
5. R1-2311349, Design of Multiple CG Occasions and unused CG occasion feedback, CATT
6. R1-2311408, Remaining issues on XR-specific capacity enhancements, xiaomi
7. R1-2311489, Remaining issues on XR-specific capacity enhancements, CMCC
8. R1-2311533, Remaining issues on XR-specific capacity enhancements, InterDigital, Inc.
9. R1-2311628, Discussion on maintenance on XR enhancements, NTT DOCOMO, INC.
10. R1-2311691, Remaining issues in XR-specific capacity enhancements, Apple
11. R1-2311732, XR-specific capacity enhancements, Nokia, Nokia Shanghai Bell
12. R1-2311851, Remaining issues on XR, Samsung
13. R1-2311897, Remaining issues on XR-specific capacity enhancements, LG Electronics
14. R1-2311905, On Maintenance of XR enhancements for NR, Ericsson
15. R1-2311953, Clarification on UTO-UCI and HARQ-ACK multiplexing on PUSCH, Sharp
16. R1-2312043, Maintenance on XR Enhancements, Qualcomm Incorporated
17. R1-2312217, Maintenance of CG enhancements for XR capacity, Huawei, HiSilicon
18. R1-2312385, Moderator Summary#1 - Maintenance of XR Enhancements, Moderator (Ericsson)
19. R1-2312386, Moderator Summary#2 - Maintenance of XR Enhancements, Moderator (Ericsson)
20. R1-2312387, Moderator Summary#3 - Maintenance of XR Enhancements, Moderator (Ericsson)