**3GPP TSG RAN WG1 Meeting #113 R1-2306261**

Incheon, Korea, 22nd – 26th May 2023

**Agenda Item: 9.6**

**Source: Rapporteur (Ericsson)**

**Title: RAN1 agreements for Rel-18 NR RedCap (sorted by meeting)**

**Document for: Information**

Introduction

This contribution lists RAN1 agreements made so far for the Rel-18 WI on ‘Enhanced support of reduced capability NR devices’ (WI code NR\_redcap\_enh-Core, WID in [1], sometimes colloquially referred to as ‘eRedCap’). This document also indicates estimated spec impacts in red color – these are just suggestions from the WI rapporteur. Useful references can be found in the end of this document.

[Introduction 1](#_Toc135985436)

[1 UE BB bandwidth reduction 1](#_Toc135985437)

[2 UE peak data rate reduction 8](#_Toc135985438)

[3 RRC parameter list 10](#_Toc135985439)

[4 UE feature list 10](#_Toc135985440)

[References 10](#_Toc135985441)

1. UE BB bandwidth reduction

RAN1#110bis-e:

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| [R1-2210248](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2210248.zip) FL summary #1 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2210249](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2210249.zip) FL summary #2 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2210250](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2210250.zip) FL summary #3 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2210251](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2210251.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  **Initial BWP**  Agreement: [38.213, 38.331]  For a cell supporting both Rel-17 and Rel-18 RedCap UEs,   * The Rel-18 RedCap UEs can share the same separate initial DL/UL BWP as the Rel-17 RedCap UEs. * FFS: whether to support an additional separate initial DL/UL BWP specific to Rel-18 RedCap UEs (replaced by later agreement)   **Number of PRBs**  Agreement: (replaced by later agreement)  For UE BB bandwidth reduction, for PUSCH, down-select between the following options for the maximum number of PRBs that the UE can transmit:   * Option 1: 28 PRBs for 15 kHz SCS and 14 PRBs for 30 kHz SCS * Option 2: 27 PRBs for 15 kHz SCS and 13 PRBs for 30 kHz SCS * Option 3: 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS * Option 4: 25 PRBs for 15 kHz SCS and 11 PRBs for 30 kHz SCS   For UE BB bandwidth reduction, for PDSCH (at least for unicast), down-select between the following options for the maximum number of PRBs that the UE can [receive/process]:   * Option 1: 28 PRBs for 15 kHz SCS and 14 PRBs for 30 kHz SCS * Option 2: 27 PRBs for 15 kHz SCS and 13 PRBs for 30 kHz SCS * Option 3: 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS * Option 4: 25 PRBs for 15 kHz SCS and 11 PRBs for 30 kHz SCS   Same option will be selected for both PDSCH (at least for unicast) and PUSCH  Agreement: (replaced by later agreement)  Replace the agreement on the maximum number of PRBs supported by UE with the following:  For UE BB bandwidth reduction, for PUSCH, down-select between the following options for the maximum number of PRBs that the UE can transmit per slot or per hop, if applicable:   * Option 1: 28 PRBs for 15 kHz SCS and 14 PRBs for 30 kHz SCS * Option 2: 27 PRBs for 15 kHz SCS and 13 PRBs for 30 kHz SCS * Option 3: 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS * Option 4: 25 PRBs for 15 kHz SCS and 11 PRBs for 30 kHz SCS   For UE BB bandwidth reduction, for PDSCH (at least for unicast), down-select between the following options for the maximum number of PRBs that the UE can process per slot:   * Option 1: 28 PRBs for 15 kHz SCS and 14 PRBs for 30 kHz SCS * Option 2: 27 PRBs for 15 kHz SCS and 13 PRBs for 30 kHz SCS * Option 3: 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS * Option 4: 25 PRBs for 15 kHz SCS and 11 PRBs for 30 kHz SCS   Same option will be selected for both PDSCH (at least for unicast) and PUSCH.  **SIB1 bandwidth**  Agreement: (replaced by later agreement)  For UE BB bandwidth reduction, for SIB1 (PDSCH) to Rel-18 RedCap UEs, down-select between the following options:   * Option 1: Restrict the scheduling of SIB1 to be within 5 MHz * Option 2: Allow the scheduling of SIB1 to be larger than 5 MHz (as in legacy operation) * FFS: whether 5MHz is assumed to be physically contiguous   Agreement: (replaced by later agreement)  Replace the agreement on SIB1(PDSCH) for UE BB bandwidth reduction with the following:  For UE BB bandwidth reduction, for SIB1 (PDSCH),   * Allow the scheduling of SIB1 to be larger than 5 MHz (as in legacy operation) * FFS: UE post-FFT buffering “assumption” (replaced by later agreement)   **OSI bandwidth**  Agreement: (replaced by later agreement)  For UE BB bandwidth reduction, for broadcast OSI (PDSCH) to Rel-18 RedCap UEs, down-select between the following options:   * Option 1: Restrict the scheduling of OSI PDSCH to be within 5 MHz * Option 2: Allow the scheduling of OSI PDSCH to be larger than 5 MHz (as in legacy operation) * FFS: whether 5MHz is assumed to be physically contiguous   Agreement: (replaced by later agreement)  Replace the agreement on broadcast OSI (PDSCH) for UE BB bandwidth reduction with the following:  For UE BB bandwidth reduction, for broadcast OSI (PDSCH),   * Allow the scheduling of broadcast OSI (PDSCH) to be larger than 5 MHz (as in legacy operation)     **Paging bandwidth**  Agreement: (replaced by later agreement)  For UE BB bandwidth reduction, for paging channel (PDSCH) to Rel-18 RedCap UEs, down-select between the following options:   * Option 1: Restrict the scheduling of paging channel to be within 5 MHz * Option 2: Allow the scheduling of paging channel to be larger than 5 MHz (as in legacy operation) * FFS: whether 5MHz is assumed to be physically contiguous   **RAR bandwidth**  Agreement: (replaced by later agreement)  For UE BB bandwidth reduction, for RAR (PDSCH) to Rel-18 RedCap UEs, down-select between the following options:   * Option 1: Restrict the scheduling of RAR PDSCH to be within 5 MHz * Option 2: Allow the scheduling of RAR PDSCH to be larger than 5 MHz (as in legacy operation) * FFS: whether 5MHz is assumed to be physically contiguous     **PUSCH bandwidth**  Agreement: [38.213]  For UE BB bandwidth reduction, a UE is not expected to receive an UL grant in a DCI with a PUSCH resource allocation spanning a bandwidth of more than ~5 MHz per slot or per hop, if applicable.  Agreement: [38.213]   * For UE BB bandwidth reduction, a UE is not expected to be configured with a CG grant with a PUSCH resource allocation spanning a bandwidth of more than ~5 MHz per slot or per hop, if applicable.   Agreement: (replaced by later agreement)   * For UE BB bandwidth reduction, it is FFS whether a UE can be expected to receive an UL grant in a RAR with a Msg3 PUSCH resource allocation spanning a bandwidth of more than ~5 MHz per slot or per hop, if applicable. |

RAN1#111:

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| [R1-2212533](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2212533.zip) FL summary #1 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2212534](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2212534.zip) FL summary #2 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2212535](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2212535.zip) FL summary #3 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2212536](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2212536.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  **Number of PRBs**  Agreement: (replaced by later agreement)  For UE BB bandwidth reduction, for PUSCH, down-select between the following options for the maximum number of PRBs that the UE can transmit per slot or per hop, if applicable:   * Option 3: 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS * Option 4: 25 PRBs for 15 kHz SCS and 11 PRBs for 30 kHz SCS   For UE BB bandwidth reduction, for PDSCH (for both unicast and broadcast), down-select between the following options for the maximum number of PRBs that the UE can process per slot:   * Option 3: 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS * Option 4: 25 PRBs for 15 kHz SCS and 11 PRBs for 30 kHz SCS   Same option will be selected for both PDSCH and PUSCH.  **UE post-FFT buffer size**  Conclusion: (no spec impact)  For UE BB complexity reduction, for broadcast and unicast PDSCH, RAN1 does not assume that the UE post-FFT buffer size per slot is smaller than 20 MHz.  **Unicast PDSCH bandwidth**  Agreement: [38.213]   * For UE BB complexity reduction, a UE is able to receive a DL assignment in a DCI with a unicast PDSCH resource allocation spanning a bandwidth of more than ~5 MHz per slot. * The number of PRB scheduled in DCI is not larger than the maximum number of PRB agreed in previous agreement from 110b-e   **SIB1/OSI**  Conclusion: (no spec impact)  For UE BB complexity reduction, broadcast of separate SIB1/OSI (PDSCH) to Rel-18 RedCap UEs is not supported.  **Paging bandwidth**  Agreement: (replaced by later agreement)  From RAN1 perspective, for UE BB complexity reduction, for paging channel (PDSCH) to Rel-18 RedCap UEs, allow the scheduling of paging channel to be larger than 5 MHz (as in legacy operation).  **RAR bandwidth and Msg3 transmission time**  Agreement: [38.213]  For UE BB bandwidth reduction, for RAR (PDSCH) to Rel-18 RedCap UEs, the scheduling of RAR PDSCH is allowed to be larger than the maximum number of unicast PRBs that the UE can process per slot.   * When the scheduling of RAR PDSCH is within the maximum number of unicast PRBs that the UE can process per slot, the legacy time between RAR reception and Msg3 transmission (not smaller than NT,1 + NT,2 + 0.5 ms) is applied. * When the scheduling of RAR PDSCH is larger than the maximum number of unicast PRBs that the UE can process per slot,   + The UE receives the RAR and correspondingly transmits Msg3 if the TDRA for Msg3 in UL grant in RAR indicates that the time between RAR reception and Msg3 transmission is NOT smaller than NT,1 + NT,2 + 0.5 + X ms.     - FFS: value(s) of X   + Otherwise, the UE behavior is up to the UE implementation. * Note: it does not mean early indication is needed * Note: it will not be used as example for unicast PDSCH   **Msg3 bandwidth**  Agreement: [38.213]  For UE BB complexity reduction, a UE is not expected to receive an UL grant in a RAR or in a DCI scrambled with TC-RNTI with a Msg3 PUSCH resource allocation spanning a bandwidth of more than ~5 MHz per slot or per hop, if applicable. |

RAN1#112:

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| [R1-2301886](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112/Docs/R1-2301886.zip) FL summary #1 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2301887](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112/Docs/R1-2301887.zip) FL summary #2 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2301888](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112/Docs/R1-2301888.zip) FL summary #3 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2301889](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112/Docs/R1-2301889.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  **Initial BWP**  Conclusion: (no spec impact)  There is no consensus to continue discussion on “whether additional separate initial DL/UL BWP specific to Rel-18 RedCap UEs is allowed to be configured by the SIB in the cell”.  **Number of PRBs**  Agreement: [38.213]  For UE BB bandwidth reduction, for PUSCH, select the following option for the maximum number of PRBs that the UE can transmit per slot or per hop, if applicable:   * Option 3: 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS   For UE BB bandwidth reduction, for PDSCH (for both unicast and broadcast), select the following option for the maximum number of PRBs that the UE can process per slot:   * Option 3: 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS   Note: No intention to change the RAN4 RF specifications about maximum transmission PRB number  **Paging bandwidth**  Agreement: [38.213]  Update the agreement for PDSCH paging with the clarification as follows:   * From RAN1 perspective, for UE BB complexity reduction, for paging channel (PDSCH) to Rel-18 RedCap UEs, allow the scheduling of paging channel to be larger than 5 MHz (as in legacy operation). The scheduling of paging PDSCH is allowed to be larger than 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS.   **RAR bandwidth and Msg3 transmission time**  Agreement: (replaced by later agreement)  For the earlier RAN1 agreement achieved in RAN1#111 as following,   |  | | --- | | For UE BB bandwidth reduction, for RAR (PDSCH) to Rel-18 RedCap UEs, the scheduling of RAR PDSCH is allowed to be larger than the maximum number of unicast PRBs that the UE can process per slot.   * When the scheduling of RAR PDSCH is within the maximum number of unicast PRBs that the UE can process per slot, the legacy time between RAR reception and Msg3 transmission (not smaller than NT,1 + NT,2 + 0.5 ms) is applied. * When the scheduling of RAR PDSCH is larger than the maximum number of unicast PRBs that the UE can process per slot,   + The UE receives the RAR and correspondingly transmits Msg3 if the TDRA for Msg3 in UL grant in RAR indicates that the time between RAR reception and Msg3 transmission is NOT smaller than NT,1 + NT,2 + 0.5 + X ms.     - FFS: value(s) of X   + Otherwise, the UE behavior is up to the UE implementation. * Note: it does not mean early indication is needed * Note: it will not be used as example for unicast PDSCH |   For the “FFS: value(s) of X”   * X = [0.5/0.25 or 1/0.5 or 2/1] ms for 15/30kHz SCS * Note: Single Value pair for X is to selected for SCSs   **MsgA bandwidth**  Agreement: [38.213]  For UE BB complexity reduction, a UE is not expected to perform 2-step RACH with a MsgA PUSCH resource spanning a bandwidth of more than ~5 MHz per slot or per hop, if applicable.  **Msg4 bandwidth**  Working assumption: (replaced by later agreement)   * For UE BB complexity reduction, a UE is able to receive a Msg4 PDSCH resource allocation spanning a bandwidth of more than ~5 MHz per slot.   + The UE is not required to process a Msg4 PDSCH with a larger number of PRBs than 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS.   **Simultaneous reception**  Conclusion: (no spec impact)  For UE BB complexity reduction, there is no need to relax the requirements on simultaneous reception of two broadcast PDSCH transmissions for SIB1/OSI/paging/RAR. |

RAN1#112bis-e:

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| [R1-2303933](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2303933.zip) FL summary #1 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2303934](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2303934.zip) FL summary #2 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2303935](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2303935.zip) FL summary #3 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2303936](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2303936.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2303937](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2303937.zip) FL summary #5 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2304261](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2304261.zip) FL summary #6 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  **SIB1/OSI bandwidth**  Agreement: [38.213]  Update the agreements for SI PDSCH with the clarification as follows:   * For UE BB bandwidth reduction, for SIB1 (PDSCH),   + Allow the scheduling of SIB1 to be larger than 5 MHz (as in legacy operation). The scheduling of SIB1 PDSCH is allowed to be larger than 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS. * For UE BB bandwidth reduction, for broadcast OSI (PDSCH),   + Allow the scheduling of broadcast OSI (PDSCH) to be larger than 5 MHz (as in legacy operation). The scheduling of OSI PDSCH is allowed to be larger than 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS.   **Random access timeline and early indication**  Agreement: (replaced by later agreement)  Down-select one among the following options in RAN1#113:   * Option 1:   + For the “FFS: value(s) of X”,     - X = 0.5/0.25 ms for 15/30 kHz SCS     - Note: Legacy default TDRA table and Δ are reused.   + A network-configurable additional separate early indication in Msg1 for Rel-18 eRedCap UEs is not supported.     - When Msg1 indication for Rel-17 RedCap UEs is configured, it is used by Rel-18 eRedCap UEs (with or without UE BB bandwidth reduction). * Option 2:   + For the “FFS: value(s) of X”,     - X = 1/0.5 ms for 15/30 kHz SCS     - Note: Legacy default TDRA table and Δ are reused.   + A network-configurable additional separate early indication in Msg1 for Rel-18 eRedCap UEs is not supported.     - When Msg1 indication for Rel-17 RedCap UEs is configured, it is used by Rel-18 eRedCap UEs (with or without UE BB bandwidth reduction). * Option 3:   + For the “FFS: value(s) of X”,     - X = 1/0.5 ms for 15/30 kHz SCS     - FFS: Whether legacy default TDRA table and Δ are reused.   + A network-configurable additional separate early indication in Msg1 for Rel-18 eRedCap UEs is supported.     - When Msg1 indication for Rel-18 eRedCap UEs is configured, it is used by Rel-18 eRedCap UEs (with or without UE BB bandwidth reduction). * Option 4:   + For the “FFS: value(s) of X”,     - X = 0.5/0.25 ms for 15/30 kHz SCS     - Note: Legacy default TDRA table and Δ are reused.   + A network-configurable additional separate early indication in Msg1 for Rel-18 eRedCap UEs is supported.     - When Msg1 indication for Rel-18 RedCap UEs is configured, it is used by Rel-18 eRedCap UEs (with or without UE BB bandwidth reduction).   Agreement: (replaced by later agreement)  The potential timeline relaxations for the following cases are FFS:   * For 2-step RACH:   + Case 2a: Between reception of fallbackRAR and transmission of Msg3   + Case 2b: Between reception of successRAR and transmission of corresponding HARQ-ACK * For 4-step RACH:   + Case 4a: Between reception of RAR PDSCH in which UE does not correctly receive the transport block and upcoming transmission of PRACH   + Case 4b: Between reception of RAR with RAPID which is not associated with the corresponding PRACH transmission and upcoming transmission of PRACH   **Msg4 bandwidth**  Agreement: [38.213]  Confirm the following working assumption by assuming that Msg3 indication is available:   * For UE BB complexity reduction, a UE is able to receive a Msg4 PDSCH resource allocation spanning a bandwidth of more than ~5 MHz per slot.   + The UE is not required to process a Msg4 PDSCH with a larger number of PRBs than 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS.   Agreement: (LS)  [Draft] LS [R1-2304258](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2304258.zip) is endorsed in principle with changing “to specify” to “to consider”.  Final LS [R1-2304262](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2304262.zip) is endorsed  **Simultaneous reception**  Conclusion: (no spec impact)  For UE BB bandwidth reduction, for autonomous SI acquisition, the following paragraph in TS 38.214 clause 5.1 still applies:   * “The UE is expected to decode a PDSCH scheduled with C-RNTI, MCS-C-RNTI, or CS-RNTI during a process of autonomous SI acquisition.” * FFS: Msg4 PDSCH scheduled by TC-RNTI case |

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| [R1-2305956](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2305956.zip) FL summary #1 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2305957](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2305957.zip) FL summary #2 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2305958](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2305958.zip) FL summary #3 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2305959](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2305959.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  **Random access timeline and early indication**  Agreement: [38.213, 38.321, 38.331]   * For the “FFS: value(s) of X”,   + X = 1/0.5 ms for 15/30 kHz SCS * Legacy default TDRA table and Δ are reused. * A network-configurable additional separate early indication in Msg1 for Rel-18 eRedCap UEs is supported.   + When Msg1 indication for Rel-18 eRedCap UEs is configured, it is used by Rel-18 eRedCap UEs (with or without UE BB bandwidth reduction). * When Msg1 indication for Rel-18 eRedCap UEs is not configured while Msg1 indication for Rel-17 RedCap UEs is configured, Rel-18 eRedCap UEs shall share the PRACH that is configured for Rel-17 RedCap UEs.   + Note: Rel-18 eRedCap UEs will be differentiated from Rel-17 RedCap UEs based on Msg3 of Rel-18 eRedCap UEs. * Additional early indication in MsgA PRACH is not supported.   Agreement: [38.213]   * For UE BB bandwidth reduction, the same timeline relaxation as for the Msg2-Msg3 timeline applies at least for the following cases:   + Case 4a: Between reception of RAR PDSCH in which UE does not correctly receive the transport block and upcoming transmission of PRACH   + Case 4b: Between reception of RAR with RAPID which is not associated with the corresponding PRACH transmission and upcoming transmission of PRACH   **MsgB bandwidth and 2-step RACH timeline**  Agreement: [38.213]  For UE BB bandwidth reduction, for 2-step RACH, assuming that MsgA PUSCH indication is transmitted:   * The bandwidth of a MsgB scheduled with MSGB-RNTI should be limited in a similar way as Msg2.   + The same timeline relaxation as for the Msg2-Msg3 timeline (i.e., 1 slot for Msg2 PDSCH larger than 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS) applies at least for the following cases:     - Case 2a: Between reception of fallbackRAR and transmission of Msg3     - Case 2b: Between reception of successRAR and transmission of corresponding HARQ-ACK * The bandwidth of a MsgB scheduled with C-RNTI should be limited in a similar way as Msg4.   **Simultaneous reception**  Agreement: [38.214]   * For UE BB complexity reduction, for RRC\_IDLE and RRC\_INACTIVE, there is no need to relax the requirements on simultaneous reception of two PDSCH transmissions for SIB1 / OSI / paging / RAR / Msg4 scheduled by TC-RNTI for the case when Msg4 PDSCH is not larger than 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS. * Note: This means that the following paragraph in TS 38.214 clause 5.1 still applies for the case when Msg4 PDSCH is not larger than 25 PRBs for 15 kHz SCS and 12 PRBs for 30 kHz SCS:   + “The UE in RRC\_IDLE and RRC\_INACTIVE modes shall be able to decode two PDSCHs each scheduled with SI-RNTI, P-RNTI, RA-RNTI or TC-RNTI, with the two PDSCHs partially or fully overlapping in time in non-overlapping PRBs.”   Agreement: [38.214]  Down-select between these options for handling of simultaneous reception during P-RNTI triggered SI acquisition when the total number of PRBs for the PDSCH scheduled with SI-RNTI and the PDSCH scheduled with C-RNTI, MCS-C-RNTI, or CS-RNTI is larger than the maximum number of PRBs that the UE can process per slot.   * Option 2: The UE may skip decoding of PDSCH [in slot n or n+1] scheduled with C-RNTI/MCS-C-RNTI/CS-RNTI but decodes SI PDSCH triggered by P-RNTI in slot n. * Option 3: The prioritization between reception of PDSCH scheduled with C-RNTI/MCS-C-RNTI/CS-RNTI and SI PDSCH triggered by P-RNTI is up to the UE implementation. * Option 4: During a process of P-RNTI triggered SI acquisition, the UE is not expected to [be scheduled PDSCH/to decode PDSCH scheduled] with C-RNTI/MCS-C-RNTI/CS-RNTI if in the same cell, another PDSCH scheduled with SI-RNTI partially or fully overlap in time. * Option 7: No specification change |

1. UE peak data rate reduction

RAN1#110bis-e:

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| [R1-2210248](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2210248.zip) FL summary #1 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2210249](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2210249.zip) FL summary #2 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2210250](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2210250.zip) FL summary #3 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2210251](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2210251.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  Agreement:   * UE peak data rate reduction is supported at least as an add-on to UE BB bandwidth reduction, (replaced by later agreement)   + The constraint *vLayers*·*Qm*·*f* ≥ 4 is relaxed to *vLayers*·*Qm*·*f* ≥ X.   + FFS: the value of X * If UE peak data rate reduction is supported as a standalone feature, [38.306]   + The constraint *vLayers*·*Qm*·*f* ≥ 4 is relaxed to *vLayers*·*Qm*·*f* ≥ Y.   + FFS: the value of Y   + Note: Whether this option is supported will be decided in RAN plenary. |

RAN1#111:

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| [R1-2212533](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2212533.zip) FL summary #1 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2212534](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2212534.zip) FL summary #2 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2212535](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2212535.zip) FL summary #3 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2212536](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2212536.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  Agreement: (replaced by later agreement)   * The minimum DL peak rate target (for FD-FDD) is [10] Mbps based on peak data rate calculation according to 38.306. * The same value for X is used for DL and UL |

RAN1#112:

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| [R1-2301886](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112/Docs/R1-2301886.zip) FL summary #1 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2301887](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112/Docs/R1-2301887.zip) FL summary #2 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2301888](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112/Docs/R1-2301888.zip) FL summary #3 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2301889](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112/Docs/R1-2301889.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  Agreement:  Revise the earlier agreement by removing the square brackets like this: [38.306]   * The minimum DL peak rate target (for FD-FDD) is ~~[~~10~~]~~ Mbps based on peak data rate calculation according to 38.306. * The same value for X is used for DL and UL   Agreement: [38.306]  For the relaxed constraint X in the following earlier RAN1 agreement, down-select between X = 3 and X = 3.2.   |  | | --- | | * UE peak data rate reduction is supported at least as an add-on to UE BB bandwidth reduction,   + The constraint *vLayers*·*Qm*·*f* ≥ 4 is relaxed to *vLayers*·*Qm*·*f* ≥ X.   + FFS: the value of X | |

RAN1#113:

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| [R1-2305956](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2305956.zip) FL summary #1 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2305957](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2305957.zip) FL summary #2 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2305958](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2305958.zip) FL summary #3 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  [R1-2305959](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2305959.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson)  Agreement: [38.306]   * For UE peak data rate reduction with UE BB bandwidth reduction,   + The 10-Mbps peak rate target corresponds to a *vLayers*·*Qm*·*f* of 3.2 * For UE peak data rate reduction without UE BB bandwidth reduction,   + The 10-Mbps peak rate target corresponds to a *vLayers*·*Qm*·*f* of 0.75   + This is assuming 20 MHz bandwidth in the 38.306 peak rate expression. * Note: This does not imply that downlink MIMO and 256 QAM are not supported |

1. RRC parameter list

RAN1#113:

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| [R1-2305959](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2305959.zip) FL summary #4 on Rel-18 RedCap UE complexity reduction Moderator (Ericsson) |

1. UE feature list

RAN1#113:

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| [R1-2306184](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2306184.zip) Session Notes for 9.16.8 Ad-Hoc Chair (NTT DOCOMO)  [R1-2306190](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2306190.zip) Summary on UE features for eRedCap Moderator (NTT DOCOMO, INC.)  [R1-2306223](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2306223.zip) Updated RAN1 UE features list for Rel-18 NR after RAN1#113 Moderators (AT&T, NTT DOCOMO, INC.)  [R1-2306225](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_113/Docs/R1-2306225.zip) LS on Rel-18 RAN1 UE features list for NR after RAN1#113 RAN1, (NTT DOCOMO, AT&T) |

References

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2. [R1-2300177](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_112/Docs/R1-2300177.zip), “WI work plan for Rel-18 RedCap”
3. [TR 38.865 V18.0.0](https://www.3gpp.org/ftp/Specs/archive/38_series/38.865/38865-i00.zip), “Study on further NR RedCap UE complexity reduction”
4. [R1-2303932](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2303932.zip), “RAN1 agreements for Rel-17 NR RedCap”
5. [R1-2304262](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_112b-e/Docs/R1-2304262.zip), “LS on Msg4 PDSCH transmission to Rel-18 eRedCap UEs” (from RAN1 to RAN2)