**3GPP TSG-RAN WG2 Meeting #116bis electronic R2-220xxxx**

**Online, January, 2022**

**Agenda item: 8.15.2**

**Source: OPPO**

**Title: Summary of [705]**

**Document for: Discussion and Decision**

# Introduction

This document is for the following discussion

* [POST116bis-e][705][V2X/SL] Open issues on SL DRX (OPPO)

 **Scope:** 1st phase: Make an open issue lists with the proposed candidate options or rapporteur suggestion. Open issue lists can include pre-identified issues (e.g. FFS, not decided or skipped from previous offline/email discussion) and new issues raised in company contributions at RAN2#116bis. For new issues that have not discussed before, rapporteur can collect companies’ inputs (e.g. whether it is essential issue that need to be considered and closed in Rel-17) and based on that, determine whether to be included in the open issue list or not. Note open issue lists also include UE capability issues raised in the company contributions.

2nd phase: email discussion on the identified open issues with collecting companies’ inputs on the candidate options or rapporteur’s suggestion.

 **Intended outcome:** Open issue list with the proposed candidate options or rapporteur’s suggestion from 1st phase (in R2-2201805). Discussion summary for the identified open issues from 2nd phase.

**Deadline:** 1st phase (1/21 – 1/28 UTC), 2nd phase (2/9 – 2/14 UTC)

# Discussion

Based on the Chairman guidance on categorization

* **Each open issue** should be associated with **suggested treatment/handling**.
	1. **Company input into Pre117-e-offline (i.e. no company tdocs)**
	2. Company tdocs invited.
	3. CR rapporteur handled issue
	4. Other, e.g. immature area, reference to dependency, unclear status etc.

The issues in this section is of category-1 (where some issues explicitly mention running-CR dependency can be handled as 3 jointly)

In each section, the issues are grouped as either old issues or new issues, and for new issues, companies can input on the need to discuss based on the following guidance. Furthermore, companies can also input if believe a specific old issue should be categorized into new issue (in order to doubt the necessity to discuss it), please be free to input as well

**For new issues that have not discussed before, rapporteur can collect companies’ inputs (e.g. whether it is essential issue that need to be considered and closed in Rel-17) and based on that, determine whether to be included in the open issue list or not.**

# Unicast-Specific Issues

# Common issues

Left issue on what DRX pattern to use for UC-based DCR message, to address the following FFS point

7: The default SL DRX configuration for BC/GC can be used for the DCR message. FFS for UC (at least for the initial message).

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200373 | OPPO | Proposal 1 Apply the same DRX scheme for UC-based DCR message as for BC-based DCR message, i.e., the default SL DRX configuration for BC/GC. |  |

**Q2.1.1-1 (old issue): Do you agree the default SL DRX configuration for BC/GC can be used for both BC-based and UC-based DCR message?**

Left issue on whether DRX is applicable to message between DCR message and *RRCReconfigurationSidleink* message, to address the following skipped proposal at R2#116

Proposal 25: RAN2 further discuss that whether SL DRX should be applied for the PC5-S messages which are sent after the DCR message and before SL unicast DRX configuration is applied.

* Skipped.

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200318 | CATT | Proposal 14: It is slightly preferred that the SL DRX is not applied to SL UC messages after DCR and before the SL DRX configuration is applied. |  |
| R2-2200373 | OPPO | Proposal 2 The PC5-S/PC5-RRC signalling after DCR and before UC DRX configuration is exchanged in a non-DRX manner. |  |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 12: RAN2 discuss the SL DRX configuration used during unicast establishment procedure, with following optionsl Option 1: preconfigured SL DRX configuration for [DCR~DCA], per-PQI SL DRX configuration after DCA and until dedicated SL DRX configuration is completedl Option 2: preconfigured SL DRX configuration after DCR and until dedicated SL DRX configuration is completedl Option 3: UE is always awake, i.e., no DRX, after the unicast link has been established and until dedicated SL DRX configuration is completed |  |
| R2-2200483 | HW | Proposal 14: RAN2 to adopt Option 2 to transfer other PC5-S message (SMC, DCA, etc.), PC5-RRC message related with UE capability interaction (i.e. UECapabilityEnquirySidelink message and UECapabilityInformationSidelink message), and the first RRCReconfigurationSidelink message (incl. DRX configuration):- Option 1: Using the same BC/GC DRX configuration for DCR message transmission to transmit these message. - Option 2: From RX UE perspective, DRX is deactivated after receiving DCR message and activated when receiving the first RRCReconfigurationSidelink message (incl. DRX configuration) |  |
| R2-2200528 | Intel Corporation | Proposal 2: It is proposed to not apply SL DRX for the PC5-S/PC5-RRC messages which are sent after the DCR message and before SL unicast DRX configuration is applied. |  |
| R2-2200544 | LG Electronics France | Proposal 2: The common default SL DRX configuration for BC/GC can be used until receiving RRCReconfigurationSidelink for the initial SL DRX configuration between TX UE and RX UE in unicast. For example, the messages for DCR, DCA, capability exchange, and initial SL DRX configuration can be transmitted on the default SL DRX configuration. |  |
| R2-2200938 | Ericsson | Proposal 21 Apply the common default SL DRX configuration for GC/BC also to the other initial signalling sent after the DCR message and before the SL unicast DRX configuration is applied. |  |
| R2-2201523 | Lenovo, Motorola Mobility | SL DRX Configuration during Unicast establishment procedure Proposal 5: RAN2 agree the SL DRX configuration used during unicast establishment procedure, with following option: Option 1: preconfigured SL DRX configuration for [DCR~DCA], per-PQI SL DRX configuration after DCA and until dedicated SL DRX configuration is complete |  |

**Q2.1.1-2 (old issue): Which option do you prefer for messages delivery between PC5-S DCR message and PC5-RRC *RRCReconfigurationSidelink* message including DRX configuration**

**Option-1: DRX is not applied**

**Option-2: DRX is applied, using default SL DRX configuration for BC/GC, i.e., the same as the one used for DCR message**

Left issue on the content of assistance information of desired DRX configuration, to address the following skipped proposals in R2#116

Proposal 14: RAN2 to further discuss whether the drx-inactivity timer should be included in the RX UE’s desired SL DRX configuration.

Proposal 15: RAN2 to further discuss whether the HARQ RTT timer should be included in the RX UE’s desired SL DRX configuration.

Proposal 16: RAN2 to further discuss whether the HARQ retransmission timer should be included in the RX UE’s desired SL DRX configuration.

Proposal 19: RAN2 to further discuss when the Rx UE rejects the SL DRX configuration included in the RRCReconfigurationSidelink, which PC5-RRC signaling should be sent from Rx UE to Tx.

* Proposal 14, 15, 16 and 19 are skipped.

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200318 | CATT | Proposal 5: The inactivity timer, HARQ RTT timer and retransmission timer could be included in the desired SL DRX configuration to help gNB or Tx UE to determine the SL DRX configuration. |  |
| R2-2200344 | NEC Corporation | Proposal 1 From signaling design point of view, include drx-inactivity timer / HARQ RTT timer/ HARQ retransmission timer to the assistance information signaling. |  |
| R2-2200344 | NEC Corporation | Proposal 2 Whether to indicate RX UE’s desired drx-inactivity timer / HARQ RTT timer/ HARQ retransmission timer is up to RX UE’s implementation. |  |
| R2-2200373 | OPPO | Proposal 3 Inactivity timer/retransmission timer/RTT timer are not included in the RX UE’s desired SL DRX configuration. |  |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 6: Assistance information from Rx UE includes information with respect to a shift (drx-StartOffset) of the DRX Cycle with respect to the current start of the DRX cycle i.e., no other DRX configuration parameter from the Rx UE is provided. | For shift of the DRX cycle, this is the only paper proposing it, moderator suggest not to prioritize this issue. |
| R2-2200791 | Xiaomi | Proposal 9: RX UE provides undesired SL DRX configuration to TX UE in assistant information, i.e. its activated configured SL/UL grant resource allocation. |  |
| R2-2201152 | InterDigital | Proposal 4: Drx-inactivity timer, HARQ RTT timer, and HARQ retransmission timer are not included in the RX UE’s desired SL DRX configuration.  |  |
| R2-2200528 | Intel Corporation | Proposal 1: The drx-inactivity timer, SL HARQ RTT and HARQ retransmission timer shall not be included as part of the RX UE’s SL DRX desired configuration and how to configure them is up to the TX UE (or its serving gNB). |  |

**Q2.1.1-3a (old issue): Whether inactivity timer, HARQ RTT timer and re-transmission timer are included in assistance information from Rx UE to Tx UE? (companies can express preference for each timer respectively)**

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200373 | OPPO | Proposal 4 For on-duration timer length and cycle value, value range (e.g., the minimum value and the maximum value for a parameter) can be used to express the desired SL DRX configuration. |  |
| R2-2200791 | Xiaomi | Proposal 8: Multiple sets of preferred SL DRX configuration could be included in assistance information, each set of SL DRX configuration corresponds to Uu DRX or SL DRX on other destinations. |  |
| R2-2200893 | vivo | Proposal 8 For the content of SL assistance information, agree one set of preferred SL DRX timers configuration included in UEAssistanceInformationSidelink. |  |

**Q2.1.1-3b (new issue): In assistance information from Rx UE to Tx UE, for each DRX setting (cycle, timer and etc.), do you think a single value is enough or multiple values are needed (detailed signalling format, whether multiple setting combination, or value range of each parameter, can be left to RRC running-CR discussion) (companies can express preference for each DRX setting respectively)**

Left issue to consolidate the initiation condition for Rx-UE to send assistance information

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 4: Assistance information from a Rx UE for SL DRX configuration is triggered when 1) Tx UE capability indicate Tx UE support SL DRX; 2) DRX configuration received from Tx UE is not suitable. | **For 2), moderator understand as long as the previously sent assistance information has not changed, there is no need to re-send it.** |

In the current running-CR, it is described as

5.8.9.X.2 Initiation

For sidelink unicast, a UE capable of sidelink DRX may send this assistance information to its peer UE when the previously transmitted sidelink DRX assistance information has changed.

Moderator understands that on top of the existing initiation condition, further condition can be considered, e.g., 1) Tx capability indicate Tx-UE support SL DRX, 2) the assistance information has not been sent before.

**Q2.1.1-4 (new issue): On top of the existing RRC running-CR, any additional initiation condition needed for the delivery of assistance information?**

**Condition-1: peer-UE is capable of sidelink DRX**

**Condition-2: the assistance information has not been sent previously**

**Condition-3: serving cell is capable of sidelink DRX**

Left issue to consolidate the Tx-UE behaviour to send DRX configuration

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 3: Assistance from Rx to Tx can be sent at any point. Tx does not have to wait for Rx assistance to decide and signal a DRX configuration to the Rx UE. | These two are different views. |
| R2-2200544 | LG Electronics France | Proposal 3: When initial SL DRX configuration, TX UE should wait for assistance information from RX UE for a certain period after capability exchange with RX UE.  |
| R2-2200264 | ZTE Corporation, Sanechips | Proposal 7 Considering that how to configure SL DRX is based on TX UE implementation, RAN2 shall design a mechanism to ensure that the TX UE will try its best to configure suitable SL DRX for the RX UE.  | These two are different viewsModerator understand assistance information has to be taken into account otherwise it goes against the motivation to introduce it.Seems the current RRC running CR did not put a restriction in the following section 5.8.9.X.3 Actions related to reception of UEAssistanceInformationSidelink messageFor sidelink unicast, when a UE is in RRC\_CONNECTED, it may report this assistance information received from its peer UE to the network. For sidelink unicast, when a UE in IDLE/INACTIVE or OOC has obtained this assistance information from its peer UE, it may derive the value of the inactivity timer based on its implementation. |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 5: If Rx assistance is available at the Tx UE, it can be considered by the Tx UE. |

**Q2.1.1-5a (new issue): After capability exchange, is there a need to define a time restriction for Tx-UE to send DRX related configuration to RX-UE?**

**Q2.1.1-5b (new issue): Upon reception of *UEAssistanceInformationSidelink*, do you agree to capture Tx-UE behaviour on taking it into account for DRX configuration derivation (e.g., “it may derive the value of DRX settings based on its implementation by taking assistance information into account”, detailed wording can be left to MAC running-CR discussion)**

Left issue to consolidate Rx-UE behaviour to reject a DRX configuration, firstly, condition to reject DRX configuration

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200483 | HW | Proposal 2: RAN2 to discuss the following triggering conditions of SL DRX configuration failure/rejection in RX UE:- The received SL DRX does not match the desired SL DRX of the RX UE- The received SL DRX does not match the configured SL DRX(s) for other SL connection(s) of the RX UE- The received SL DRX does not match the SL DRX configuration(s) configured for its RX UE(s)- The received SL DRX does not match the power saving demand of the RX UE. | Moderator understand the first one seems straightforward, i.e., “The received SL DRX does not match the desired SL DRX of the RX UE” |

**Q2.1.1-6 (new issue): Is there a need to capture in spec the condition for Rx-UE to reject a DRX configuration?**

**Option-1: No**

**Option-2: Yes, condition of “the received SL DRX does not match the desired SL DRX of the RX UE sent in assistance information”**

Secondly, what message to use to reject a DRX configuration

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200318 | CATT | Proposal 3: RRCReconfigurationFailureSidelink is used by Rx UE to reject the Tx UE’s SL DRX configuration. |  |
| R2-2200318 | CATT | Proposal 4: If SL DRX configuration is rejected by Rx UE, the Rx UE can send RRCReconfigurationFailureSidelink message to Tx UE, and it is unnecessary to introduce additional cause value in the RRCReconfigurationFailureSidelink message. |  |
| R2-2200344 | NEC Corporation | Proposal 4 When the Rx UE rejects the SL DRX configuration included in the RRCReconfigurationSidelink, RRCReconfigurationCompleteSidelink with a new DRX rejection indication should be sent from Rx UE to Tx UE. |  |
| R2-2200373 | OPPO | Proposal 5 Use RRCReconfigurationCompleteSidelink message to indicate the SL DRX rejection from Rx UE. |  |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 8: Reuse RRCReconfigurationFailureSidelink to indicate SL DRX configuration failure |  |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 9: A failure cause is added in RRCReconfigurationFailureSidelink to differentiate whether the radio configuration is failed or SL DRX configuration is failed. Similar information  |  |
| R2-2200791 | Xiaomi | Proposal 2: If there is configuration error for the sidelink configuration carried in RRCReconfigurationSidelink, UE response with RRCReconfigurationFailureSidelink, otherwise, UE response with RRCReconfigurationCompleteSidelink. |  |
| R2-2200791 | Xiaomi | Proposal 3: Introduce new indication for RX UE to inform TX UE the sidelink DRX configuration accept or reject on sidelink. |  |
| R2-2200791 | Xiaomi | Proposal 4: Indication of DRX configuration accept or reject is carried in RRCReconfigurationCompleteSidelink. |  |
| R2-2200791 | Xiaomi | Proposal 5: TX UE checks the indication of DRX configuration accept or reject in RRCReconfigurationCompleteSidelink to determine whether the sidelink DRX configuration carried in corresponding RRCRecofigurationSidelink is applied or not by RX UE |  |
| R2-2200791 | Xiaomi | Proposal 6: TX UE considers the Sidelink configuration other than DRX carried in corresponding RRCRecofigurationSidelink applied by RX UE upon reception of RRCReconfigurationCompleteSidelink. |  |
| R2-2200938 | Ericsson | Proposal 3 RX UE replies RRCReconfigurationFailureSidelink if the SL DRX configuration is rejected, with a new rejection cause included. |  |
| R2-2200938 | Ericsson | Proposal 4 In case the RX UE has rejected the SL DRX configuration, the RX UE shall reject the whole RRC reconfiguration as in Uu. |  |
| R2-2201523 | Lenovo, Motorola Mobility | SL DRX configuration rejectionProposal 1: Reuse RRCReconfigurationFailureSidelink to indicate SL DRX configuration failure |  |
| R2-2201523 | Lenovo, Motorola Mobility | Proposal 2: A failure cause is added in RRCReconfigurationFailureSidelink to differentiate whether the radio configuration has failed, or SL DRX configuration has failed. |  |
| R2-2200544 | LG Electronics France | Proposal 4: RX UE can continue to use the prior SL DRX configuration until receiving a new SL DRX configuration after transmitting assistance information/rejection message. | Moderator understand it would be business as usual if *RRCReconfigurationFailureSidelink* is used, and can clarify in case *RRCReconfigurationCompleteSidelink* is used |

**Q2.1.1-7(old issue): In order for Rx-UE to reject a DRX configuration, which message to use, *RRCReconfigurationFailureSidelink* or *RRCReconfigurationCompleteSidelink*?**

**Q2.1.1-7a (old issue): In case *RRCReconfigurationFailureSidelink* is adopted, do you agree to introduce an indication for the DRX configuration rejection *RRCReconfigurationFailureSidelink*?**

**Q2.1.1-7b (old issue): In case *RRCReconfigurationCompleteSidelink* is adopted, do you agree to introduce an indication for the DRX configuration rejection *RRCReconfigurationCompleteSidelink*?**

**Q2.1.1-8 (new issue): In case *RRCReconfigurationCompleteSidelink* is adopted, after rejecting the DRX configuration, should the Rx-UE use the prior SL DRX configuration until receiving a new SL DRX configuration?**

Given the tool to reject the undesired DRX-configuration by Rx-UE, left issue on the necessity of additional tool to avoid Tx-UE implementation keeping sending the undesired DRX configuration

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200264 | ZTE Corporation, Sanechips | Proposal 8 If RX UE sends SL DRX assistance information, but the TX UE does not configure acceptable SL DRX for the RX UE and no SL DRX is used before, the RX UE can use desired SL DRX configuration included in the assistance information, or use default SL DRX instead of using no SL DRX. | I.e., if the DRX configuration is not desired, RX UE would start using desired configuration by itself. Moderator understand the feasibility of this scheme relates to whether all DRX parameters are included in assistance information or not. |
| R2-2200544 | LG Electronics France | Proposal 5: If RX UE receives SL DRX configuration unable to comply despite transmitting assistance information or rejection messages, the RX UE should be allowed unicast session release. | I.e., if the DRX configuration is not desired, RX UE may disconnect. |
| R2-2200544 | LG Electronics France | Proposal 6: If RX UE does not receive any new SL DRX configuration from TX UE despite transmitting assistance information or rejection messages, the RX UE should be allowed unicast session release. |
| R2-2200544 | LG Electronics France | Proposal 7: RX UE needs a timer after transmitting assistance information or rejection message to TX UE. The timer is used to determine whether RX UE finally complies with the SL DRX configuration. | I.e., the timer used as a “deadline” for Tx-UE to send desired DRX configuration |
| R2-2200893 | vivo | Proposal 4 The SL DRX negotiation procedure between SL TX UE and SL RX UE can be either one-shot or multiple-shot. |  |
| R2-2200893 | vivo | Proposal 5 When SL TX UE is RRC IDLE/IANCTIVE/OOC, it’s up to SL TX UE to select one shot or multiple shots for the SL DRX negotiation procedure between SL TX UE and SL RX UE. |  |
| R2-2200893 | vivo | Proposal 5 When SL TX UE is RRC IDLE/IANCTIVE/OOC, it’s up to SL TX UE to select one shot or multiple shots for the SL DRX negotiation procedure between SL TX UE and SL RX UE. |  |
| R2-2200893 | vivo | Proposal 6 When SL TX UE is RRC IDLE/IANCTIVE/OOC, if multiple-shot SL DRX negotiation is executed, RAN2 to discuss some mechanism (e.g., timer or counter) to avoid endless negotiation between SL TX UE and SL RX UE. | I.e., the timer + counter for Tx-UE to send desired DRX configuration.Moderator suggest to focus on the timer since the counter proposal is from a single paper, and anyway counter cannot work alone without timer. |
| R2-2200893 | vivo | Proposal 7 When SL TX UE is RRC CONNECTED, it’s up to SL TX UE’s serving gNB to select one shot or multiple shots for the SL DRX negotiation procedure between SL TX UE and SL RX UE. No specification impact is foreseen. |  |

**Q2.1.1-9a (new issue): Is there a need to introduce a restriction for Tx-UE to send desired DRX configuration to Rx-UE after Rx-UE reject the DRX configuration**

**Option-1: No**

**Option-2 (new issue): Yes, a timer is needed (e.g., the timer starts upon Rx-UE reject the DRX)**

**Q2.1.1-9b (new issue): If option-2 (or any similar timer-based solution) is selected in the question above, what should be the result upon the expiry of this timer?**

**Option-1: Rx-UE starts using desired DRX configuration autonomously;**

**Option-2: Rx UE release the unicast link with Tx UE (e.g., using PC5-S message PROSE DIRECT LINK RELEASE REQUEST)**

# Issues related to network involvement

Left issue on gNB capability w.r.t SL-DRX

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200544 | LG Electronics France | Proposal 15: If gNB does not have DRX capability, TX UE keeps the controllability of configuring SL DRX configuration for RX UE. |  |
| R2-2200790 | Xiaomi | Proposal 6: UE triggers **SUI to report SL DRX information**, i.e. received assistance information and SL DRX, if SL DRX configuration in SIB is present and UE did not report SL DRX information. |  |
| R2-2200893 | vivo | Proposal 1 The UE shall only report SUI carrying the SL DRX configuration or SL assistance information to its serving gNB if its serving gNB is SL-DRX capable. |  |
| R2-2200893 | vivo | Proposal 2 Introduce 1-bit indication in SIB12 to indicate gNB’ support of SL DRX. | Moderator understand there is at least other ways to implicitly indicate it, e.g., by the existence of SL-DRX configuration for GC/BC in SIB12, or rely on configuration in dedicated RRC signalling for RRC\_CONNECTED UE to control the report of DRX related information using SUI. |

**Q2.1.2-1a (new issue): Do you agree that it is possible that gNB, which provides SL configuration to in-coverage UE, may or may not support SL-DRX?**

**Q2.1.2-1b (new issue): If yes to 1a above, how for gNB to notify its capability of SL-DRX support to UE?**

**Option-1: using indication in SIB12 explicitly**

**Option-2: using indication in SIB12 implicitly**

**Option-3: using indication in dedicated RRC signaling**

Left issue on what additional report to gNB is needed besides the following agreed one(s)

Agreements on TX-UE centric or RX-UE centric DRX configuration determination

1: In SL unicast, for DRX configuration of each direction where one UE as Tx-UE and the other UE as Rx-UE, support signalling exchange including both 1) Signaling-1: signalling from RX-UE to TX-UE, and 2) Signaling-2: signalling from TX-UE to RX-UE.

[…]

3: In SL unicast, for DRX configuration of each direction where one UE as Tx-UE and the other UE as Rx-UE, when Tx-UE is in-coverage and in RRC\_CONNECTED state, Tx-UE may report the information received in signaling-1 (Rx->Tx) to the serving network.

[…]

5: In SL unicast, for DRX configuration of each direction where one UE as Tx-UE and the other as Rx-UE, when Rx-UE is in-coverage and in RRC\_CONNECTED state, Rx-UE report the DRX configuration received in signalling-2 (Tx->Rx) to the serving network.

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200791 | Xiaomi | Proposal 7: CONNECTED TX UE indicate RX UE’s reject or reception of sidelink DRX to gNB. | Report for reject, based on 116b agreement, moderator understand it is for mode-1 case only. |
| R2-2200938 | Ericsson | Proposal 5 A RRC\_CONNECTED Tx UE informs its serving gNB of the rejection of SL DRX configuration. |
| R2-2200544 | LG Electronics France | Proposal 11: When TX UE in RRC\_IDLE/INACTIVE or OoC, performing SL DRX, becomes RRC\_CONNECTED, if the serving gNB of TX UE configures to provide, TX UE reports SL DRX configuration for RX UE and stored assistant information from RX UE. | Report by Tx-UE on DRX configuration, based on 116b agreement, moderator understand it is for mode-2 case onlyReport by Tx-UE on assistance information, based on 116b agreement, moderator understand it is for mode-1 case only |
| R2-2200544 | LG Electronics France | Proposal 14: RX UE reports the latest SL DRX configuration received from TX UE to its serving gNB if the serving gNB configures to provide but not provided yet. | Report by Rx-UE on DRX configuration |
| R2-2201135 | Apple | Proposal 10 If mode 2 TX UE self-determines the SL DRX configuration for unicast link, Mode-2 TX UE in RRC\_CONNECTED may inform its serving gNB about its decided SL-DRX configuration by including it in UE Assistance information. | Report by Tx-UE on DRX configuration, moderator understand it is reported only for the DRX configuration accepted by Rx-UE |
| R2-2200544 | LG Electronics France | Proposal 15: If gNB does not have DRX capability, TX UE keeps the controllability of configuring SL DRX configuration for RX UE. | i.e., even in mode-1, it behave as for mode-2 for DRX setting |

**Q2.1.2-2a (new issue): At least for gNB which is capable of SL-DRX, do you agree that Tx-UE report assistance information only in case of mode-1?**

**Q2.1.2-2b (new issue): At least for gNB which is capable of SL-DRX, do you agree that Tx-UE report DRX configuration reject information only in case of mode-1?**

**Q2.1.2-2c (new issue): At least for gNB which is capable of SL-DRX, do you agree that Tx-UE report DRX configuration accepted by Rx-UE only in case of mode-2?**

**Q2.1.2-2d (new issue): If yes to 2a above, do you agree to rely on the gNB capability notification, as output of Q2.1.2-1b above, to disable Tx/Rx-UE report (including all DRX related report by Tx-UE, i.e., assistance information, DRX reject information, DRX configuration information, and report by Rx-UE, i.e., DRX configuration information for UC and QoS information for GC/BC), if gNB is not capable of SL-DRX?**

**Q2.1.2-2e (new issue): If yes to 2a above, do you agree to rely on the gNB capability notification, as output of Q2.1.2-1b above, to rely on Tx-UE itself (as for mode-2) to determines SL DRX for RX UE?**

Left issue on signalling content

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2201582 | Samsung Research America |  [Proposal 2]: For UC, list of source UE id (as TX UE id), the destination UE id (as RX UE id), SL DRX cycle length, SL DRX start offset and SL DRX on-duration timer are included in the report.  |  |
| R2-2201582 | Samsung Research America | [Proposal 3]: For UC, SL DRX inactivity timer, SL DRX HARQ RTT, and SL DRX HARQ retransmission timer are not needed in the report. | Moderator see the point that for Rx-UE it is not feasible for gNB to know the status of inactivity / RTT / Retx timer, while it may be possible for gNB of Tx-UE (mode-2) |

**Q2.1.2-3a (new issue): For DRX configuration report by Rx-UE, which DRX parameter(s) should be included?**

**Parameter-1: SL DRX cycle length**

**Parameter-2: SL DRX start offset**

**Parameter-3: SL DRX on-duration timer length**

**Parameter-4: SL DRX inactivity timer length**

**Parameter-5: SL DRX HARQ RTT timer length**

**Parameter-6: SL DRX HARQ retransmission timer length**

**Q2.1.2-3b (new issue): If one answer Yes to Q2.1.2-2d, for DRX configuration report by Tx-UE, which DRX parameter(s) should be included?**

**Parameter-1: SL DRX cycle length**

**Parameter-2: SL DRX start offset**

**Parameter-3: SL DRX on-duration timer length**

**Parameter-4: SL DRX inactivity timer length**

**Parameter-5: SL DRX HARQ RTT timer length**

**Parameter-6: SL DRX HARQ retransmission timer length**

Left issue on the usage of DRX command MAC CE for mode-1 UE

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200373 | OPPO | Proposal 13 RAN2 to discuss the following options on SL DRX command MAC CE in mode-1: 1) gNB takes in charge of sending SL DRX command MAC CE; 2) Tx UE determines on sending SL DRX command MAC CE by itself and reports this to gNB, and 3) do not use SL DRX command MAC CE in mode-1. | The reason is to check how for NW and UE to sync on DRX active time considering the usage of DRX command MAC CE by Tx-UE. |

**Q2.1.2-4 (new issue): For Tx-UE in mode-1, whether SL DRX command MAC CE can be used?**

**Option-1: No**

**Option-2: Yes, and Tx-UE can only use it based on network indication (for which new signalling is needed)**

**Option-3: Yes, and Tx-UE has to notify network on the usage (for which new signalling is needed)**

# Companies Input on section 2.1 for Phase-1

Please share your view on the open issue list above (even companies can input using multiple rows for different questions/issues)

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| **Company** | **Concerned question** | **Comment** |
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# Groupcast/Broadcast-Specific Issues

Left issue on LCP impact due to Tx profile

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| **Tdoc** | **Company** | **Proposals and Moderator’s remark** | **Moderator’s recommendation** |
| R2-2200264 | ZTE Corporation, Sanechips | Proposal 1 It is suggested to send a LS to SA2 to request them consider the TX profile issue when UE selects the default Destination Layer-2 IDs for the initial signalling. | Moderator understand the root issue is due to a single L2 ID map to different service type with different Tx profiles |
| R2-2200938 | Ericsson | Proposal 34 Define rules for UE to determine which profile shall be applied in case UE has data with different profiles (e.g., belonging to different services types, etc.) for transmission, e.g., select the profile according to the service with the highest priority. | Moderator understand the root issue is due to a single L2 ID map to different service type with different Tx profiles |

Given the following agreement from 116b, moderator understand it is a special case of “a single L2 ID mapped to multiple DRX pattern”, i.e., One associated DRX pattern is non-DRX, and the straightforward solution is to ignore such associated Tx profile since that does not affect the DRX pattern selection.

10: Working assumption (down-selection for DRX cycle and on-duration for GC/BC when multiple QoS profiles are associated with the same DST L2 id) is confirmed as an agreement.

11: TX/RX UE determines the DRX cycle applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the minimum DRX cycle configured for any of the QoS profiles associated with that L2 destination ID.

**Q2.2-1 (new issue): Do you agree if a same L2 ID associates with both DRX-based Tx profile and non-DRX based Tx profile, the DRX setting are decided based on the DRX-based Tx profile only.**

Left issue on Tx profile report

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| **Tdoc** | **Company** | **Proposals and Moderator’s remark** | **Moderator’s recommendation** |
| R2-2200483 | HW | Proposal 18: For Rel-17 TX UE, UE reports TX profile information associated with DST L2 ID in SUI message, to assist the alignment of the Uu DRX of TX UE and SL DRX of RX UE, and to assist the SL transmission of TX UE limited by active time of SL DRX. |  |

When Tx profile is introduced in LTE, the eNB awareness of the mapping between TX profiles and Destination L2 IDs is discussed by RAN2 and the following RAN2 view is concluded and sent to SA2(R2-1815665).

RAN2 view is that the eNB should be provided by the operator or V2X service provider with a mapping between TX profiles and Destination L2 IDs, e.g. as part of the UE subscription profile or via network implementation signalling.

And that RAN2 view is confirmed by SA2 and captured in their spec (23.285):

When the network scheduled operation mode is used, following additional principle applies:

 -When the eNB receives a request for PC5 resource from a UE, the eNB may deduce the Tx Profile from the Destination L2 ID.

NOTE 1: The mapping from Destination L2 ID to Tx Profile is configured in the eNB. The eNB can determine the Tx Profiles that the UE needs to use for transmitting the packets thus utilising the resources available appropriately (i.e. handling of sidelink grant), see TS 36.321 [26] for details.

Moderator understand the same principle and be applied in NR, i.e., gNB is aware of the mapping between L2 ID and Tx profile, no signalling from UE to gNB is needed for reporting Tx profile.

**Q2.2-2 (new issue): How for gNB to be aware of the mapping between L2 ID and Tx profile in NR?**

**Option-1: Reuse the LTE solution, i.e., no spec effort by RAN2;**

**Option-2: Rely on UE to report mapping, in SUI message, i.e., spec effort by RAN2**

Based on the following EN in running-CR of 321

Editor’s Note: The RAN2 agreements of the Tx profile will be captured after completion of further discussion (format, contents and UE’s behaviour).

And the following EN in running-CR of 331

[Editor’s Note]: the actual capturing of TxProfile FFS.

Moderator understand it is necessary to add the Q:s for Tx profile. Firstly, on Tx profile format

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| Tdoc | Company | Proposals and Moderator’s remark | Moderator’s recommendation |
| R2-2200544 | LG Electronics France | Proposal 1: TX profile should include the following information at least:- Release identification- SL DRX ON/OFF  | Moderator understand this is already concluded in last RAN2 meeting. |

**Q2.2-3a (new issue): Do you agree that the Tx profile should include at least the information of**

**Information-1: Release identity**

**Information-2: DRX support or not**

For the usage of Tx profile, moderator understand in LTE, 36.321 gives a baseline for the usage as follows

<firstly, for a grant, select a Tx profile based on the LCH of highest prio>

- consider the selected transmission format to be *SL-V2X-TxProfile* for the highest priority of the sidelink logical channel(s) in the MAC PDU (TS 36.331 [8]);

<Secondly, during LCP, select destination based on the >

- Step 0: Select a ProSe Destination, having the sidelink logical channel with the highest priority, among the sidelink logical channels having data available for transmission and having the same transmission format as the one selected corresponding to the ProSe Destination;

NOTE: The sidelink logical channels belonging to the same ProSe Destination have the same transmission format.

**Q2.2-4a (new issue): For the usage of Tx profile, do you agree, for a grant, select the Tx profile based on the LCH with highest prio?**

**Q2.2-4b (new issue): For the usage of Tx profile, do you agree, to generate a MAC PDU for a grant, which option do you prefer**

**Option-1: since all LCHs for a same destination has the same Tx profile, it is sufficient to consider the selected Tx profile during destination-selection step**

**Option-2: since not all LCHs for a same destination has the same Tx profile, it has to consider the selected Tx profile during both destination-selection and LCH-selection step**

# Companies Input on section 2.2 for Phase-1

Please share your view on the open issue list above (even companies can input using multiple rows for different questions/issues)

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| **Company** | **Concerned question** | **Comment** |
| Huawei, HiSilicon | To add a new issue | In 116 meeting, RAN2 discussed the issue of “When SL DRX is adopted in groupcast, the retransmission timer status among the multiple UEs in the same group may be misaligned, which may lead to packet loss in RX UE(s)”, which was considered valid by many companies. And the discussion of the impact on initial transmission is as follows:For GC: * Option1: Initial transmission is allowed during the time when on-duration and inactivity timer run.
* Option2: Initial transmission is allowed during any active time.

Option 1: Qualcomm, Lenovo, IDT, Huawei, Ericsson (5)Option 2: LG, OPPO, Nokia, Intel, Apple, MediaTek, NEC, ZTE, Fraunhofer, ASUSTek (10)[Session chair]: Seems more companies support option 2. Then with option2, how to avoid the problem? [OPPO]: Observation is technically correct. However, it should be left to TX UE implementation. [Qualcomm]: RX UE behavior after sending ACK is not decided yet, we may need to see this RX UE behavior first. [Lenovo]: Consequence is packet loss, which is not acceptable to leave it to UE implementation. Due to limited time, this issue was left for further discussion by session chair.So we think this issue, including the impacts on initial transmission and retransmission timer, should be added to 2.2 such as the following. We reorganize the wordings of options for initial transmission case for clarity.Q2.2-X: For SL groupcast, how is initial transmission scheduled?Option-1: Initial transmission is allowed only during the time when on-duration or inactivity timer runs;Option-2: Initial transmission is allowed during during the time when on-duration, inactivity timer or retransmission timer runs.Q2.2-Y: For SL groupcast, how is retransmission transmission scheduled?Option-1: Retransmission of a SL process is only allowed during the time when onduration timer, inactivity timer, or the retransmission timer of this SL process is running;Option-2: Retransmission of a SL process is allowed during the time when onduration timer, inactivity timer, or the retransmission timer of any SL process is running.[OPPO] Moderator tend to see this voting result indicate that there is less need to further debate this issue, and another perspective is that one can see that the related issue has been considered in the Q:s in 2.3.3, i.e., how to select resources for initial / re-transmission for different cast types. |
| InterDigital | Issue Q2.2-1 | While we think this should be discussed, the question should be rather whether to send LS to SA2 or not (to first confirm that the scenario of multiple TX profiles associated to the same service type/L2 ID is possible. |
|  | Issue Q2.2-2 | If an assumption was made on TX profiles in LTE, is there any reason it should be different in NR? |
| C ATT | To add new issue | In RAN2#116bis, we have below agreement:7: For groupcast or broadcast, the existing information content in the existing RRC signaling (e.g., SidelinkUEInformationNR) is reused by TX UE if in RRC CONNECTED to report assistance information to the gNB in order to achieve alignment of Uu DRX of TX UE and SL DRX of RX UE. FFS on additional information.The FFS part should be further discussed.In our contribution R2-2200319, it is proposed to consider the issue that the gNB may not have the information of DRX enable/disable for an destination ID if only existing RRC signalling and assistant information are reused by Tx UE, so it is hard for gNB to perform the alignment of Uu DRX of TX UE and SL DRX of RX UE. we hope follow issue could be discussed:Q2.2-X: For groupcast or broadcast, is it possible that Tx UE in connected mode does not enable the DRX for a specific destination ID for GC/BC?If the answer is yes for above Q2.2-X, based on existing information, we think gNB may have not the effective information to determine the alignment of Uu DRX and SL DRX. A common understanding needs to be asked:Q2.2-Y: For groupcast or broadcast, in case of Tx UE in connected mode, does gNB need to know the information of DRX enable/disable for a SL destination ID to support the alignment of Uu DRX and SL DRX for groupcast and broadcast? |
| ZTE | Issue Q2.2-1 | We think in most cases, the Tx profiles is configured per destination L2 ID. However, we shall wait for the conclusion from SA2. So we do not want to discuss the issue of single L2 ID map to different service type with different Tx profiles right now. But we think there is one exception, that is, according to current specification TS 23.304, when the UE intends to establish a single unicast link that can be used for more than one V2X service types, the UE can select any of the default Destination Layer-2 IDs to use for the initial signalling.then, If a TX UE intends to establish a single unicast link that can be used for more than one V2X service types which are associated to different TX profiles, it is uncertain that whether TX UE will assume SL DRX for the RX UEs or not when sending DCR message.So, we think for this case, the UE cannot select the default Destination Layer-2 IDs to use for the initial signalling randomly. And we suggested to send a LS to SA2 to request them consider the TX profile issue when UE selects the default Destination Layer-2 IDs for the initial signalling. |

# Common Issues for all cast types

# RTT/Re-tx timer related

Left issue on Re-tx timer start or not upon PSFCH-ACK dropping, i.e., related to the following FFS from R2#116bis

17: For unicast, sl-drx-RetransmissionTimer is started after expiring sl-drx-HARQ-RTT-Timer when the PSFCH (NACK) transmission is dropped. FFS for ACK transmission dropping.

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200318 | CATT | Proposal 8: For sidelink unicast, sl-drx-RetransmissionTimer is started after the sl-drx-HARQ-RTT-Timer expires regardless of whether the unsent PSFCH is ACK or NACK. |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 20: For unicast, sl-drx-RetransmissionTimer is started after expiring sl-drx-HARQ-RTT-Timer when the PSFCH (NACK) transmission is dropped |  |
| R2-2200374 | OPPO | Proposal 8 For P22 of [716], for ACK/NACK FB case, sl-drx-RetransmissionTimer is started after expiry of sl-drx-HARQ-RTT-Timer only if the dropped PSFCH transmission is NACK. |  |
| R2-2200483 | HW | Proposal 4: If the RX UE does not transmit PSFCH for a HARQ enabled transmission (e.g. due to UL/SL prioritization), and HARQ RTT timer expires, the RX UE starts retransmission timer regardless of whether the data corresponding to the unsent PSFCH was decoded successfully or not. |  |

Based on the online discussion result, moderator observe the majority view is clear.

**Q2.3.1-1 (old issue): For unicast, should *sl-drx-RetransmissionTimer* be started after expiry of *sl-drx-HARQ-RTT-Timer* when the PSFCH of ACK transmission is dropped or not?**

RTT timer start position if FB-disabled

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200318 | CATT | Proposal 9：when PSFCH is not configured and SL HARQ feedback is disabled，the SL HARQ RTT, if configured and resource assignment information (SCI-based RTT timer) is not present, is started at the first slot after the end of last PSSCH resource. | FB disabled + no Re-tx resource in SCI + PSFCH not configured |
| R2-2200318 | CATT | Proposal 10: when PSFCH is configured and SL HARQ feedback is configured to be disabled, the SL HARQ RTT, if configured and resource assignment information (SCI-based RTT timer) is not present, is started at the first slot after the end of last PSSCH resource. | FB disabled + no Re-tx resource in SCI + PSFCH configured |
| R2-2200483 | HW | Proposal 7: For HARQ feedback enabled case, when SCI indicates a retransmission resource, the value of HARQ RTT timer should be derived by n-k, where n is the time gap between the current transmission resource and the next reserved retransmission resource, and k is time gap between the current transmission resource and the SL HARQ feedback resource. | FB-enabled + Re-tx resource in SCI |
| R2-2200535 | LG Electronics France | Proposal 5. If resource assignment information exists in the SCI, the Rx UE can start the SL HARQ RTT timer for each PSSCH resource scheduled in the SCI, and the SL HARQ RTT timer can be running until the next retransmission resource. | Re-tx resource in SCI |
| R2-2200535 | LG Electronics France | Proposal 6. If there is no resource assignment information in the SCI, the Rx UE uses the SL DRX HARQ RTT timer (zero value or non-zero value) configured by the gNB. And Rx UE can start the SL HARQ RTT timer in the first slot after the corresponding PSSCH resource. | No Rx-tx resource in SCI |
| R2-2201152 | InterDigital | Proposal 1: For HARQ feedback disabled or PSFCH not configured, the RX UE starts the HARQ RTT timer upon reception of SCI.  | Feedback disabled + PSFCH not configured |

moderator understand the existing agreement so far on RTT timer starting position is valid at least for the case where SCI does not indicate re-tx resource and FB is enabled, so the following question is to confirm the validity of the agreement for other cases.

22: For transmissions with HARQ feedback, the RX UE starts the SL HARQ RTT timer in the symbol/slot following the end of PSFCH transmission.

23: If the RX UE does not transmit PSFCH for a HARQ enabled transmission (e.g. due to UL/SL prioritization) the RX UE still starts the HARQ RTT timer in the symbol/slot following the end of PSFCH resource.

**Q2.3.1-2a (old issue): For resource pool with PSFCH, whether the above agreement (RTT timer starts at end of PSFCH) holds for FB disabled case?**

**Q2.3.1-2b (old issue): For resource pool with PSFCH, whether the above agreement (RTT timer starts at end of PSFCH) holds for the case where SCI indicating re-tx resource?**

**Q2.3.1-2c (old issue): For resource pool without PSFCH, do you agree RTT timer starts in the slot following the end of PSSCH resource (for both SCI indicating re-tx resource and not indicating re-tx resource)?**

Left issue on applicable scenario for RTT timer and Re-tx timer

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| **Tdoc** | **Company** | **Proposals**  | **Moderator‘s remark and recommendation** |
| R2-2201152 | InterDigital | Proposal 3: Two separate HARQ retransmission timers are configured and used by the UE for HARQ enabled transmissions versus HARQ disabled/PSFCH not configured.  |  |
| R2-2201152 | InterDigital | Proposal 2: Two separate HARQ RTT timers are configured and used by the UE for HARQ enabled transmissions versus HARQ disabled/PSFCH not configured.  | Moderator understand the agreement below has covered the intention9: HARQ RTT is supported for both HARQ enabled and HARQ disabled cases by allowing HARQ RTT timer to be set to different values. FFS on the specific values that can be used for HARQ disabled case.While the only uncovered case is PSFCH-not-configured |
| R2-2200938 | Ericsson | Proposal 15 RAN2 to discuss how to set the HARQ RTT timer value in a SL DRX configuration for it to work for both HARQ-disabled case and HARQ-enabled case but the timer value cannot be deduced from SCI. | Considering now the running-CR is implemented in a way that the DRX configuration is set independent from the resource pool configuration, moderator understand the agreement below means that two values can be configured for FB-enable/disable case respectively, and UEs can use correspondingly9: HARQ RTT is supported for both HARQ enabled and HARQ disabled cases by allowing HARQ RTT timer to be set to different values. FFS on the specific values that can be used for HARQ disabled case. |
| R2-2200373 | OPPO | Proposal 14 Allow different RTT timer setting for 1) resource pool with PSFCH and FB enabled case, 2) resource pool with PSFCH and FB disabled case, and 3) resource pool without PSFCH. |  |

Given the existing agreement, moderator understand RTT timer is also necessary for FB disabled case, so the question is just whether to differentiate between pool with and without PSFCH

HARQ RTT is supported for both HARQ enabled and HARQ disabled cases by allowing HARQ RTT timer to be set to different values. FFS on the specific values that can be used for HARQ disabled case.

**Q2.3.1-3a (old issue): For resource pool where PSFCH is not configured, in case SCI does not indicate re-transmission resource, how to decide the RTT timer length?**

**Option-1: use a same RTT timer length value, i.e., a same value for FB-disabled case regardless whether PSFCH is configured or not**

**Option-2: use different RTT timer length value, e.g., fix the length of RTT timer length for pool without PSFCH to be zero**

**Q2.3.1-3b (new issue): For Re-tx timer, do you think a single value is sufficient to cover all cases (FB-enable/disable, PSFCH configured/not-configured), or is there a need to use different values for different cases?**

**Option-1: single value is sufficient**

**Option-2: multiple values are needed (if this option is selected, plz indicate which scenario(s) have to be differentiated by configured different values)**

Considering there is an agreement this meeting

6: drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. NW can set value as zero or any other value.

There is comment by companies that the following issue should be further clarified

**Q2.3.1-4 (new issue): Whether *drx-HARQ-RTT-TimerSL* is supported or not in case PSFCH is not configured in resource pool and sl-PUCCH-Config is not configured.**

One left issue as pointed out by the following paper

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| **Tdoc** | **Company** | **Proposals**  | **Moderator‘s remark and recommendation** |
| R2-2200484 | Huawei, HiSilicon | Proposal 2: Correct “sl-PUCCH-Config is configured or not” to “PUCCH resource is scheduled or not”. | 6: drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. NW can set value as zero or any other value.For the left issue, suggest to rely on running-CR discussion. |

**Q2.3.1-5 (new issue): Do you agree that the conclusion for “*sl-PUCCH-Config* is not configured” also applied to “*sl-PUCCH-Config* is configured but PUCCH resource is not scheduled”?**

# Retransmission grant dropping due to DRX inactive time

Left issue on whether retransmission grant can be used for initial transmission, in case the initial transmission grant was dropped with no MAC PDU generated

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200483 | HW | Proposal 10: UE obtains MAC PDU for a SL grant for a retransmission, if UE obtains no MAC PDU for the corresponding prior SL grant. | Moderator understand the current spec allows it for mode-1 CG resource already, but not for mode-1 DG and mode-2 grant yet. 1> if the sidelink grant is a configured sidelink grant and no MAC PDU has been obtained in a sl-PeriodCG of the configured sidelink grant: |

**Q2.3.2-1a (old issue): For mode-1 DG, if the initial transmission occasion was dropped due to no Rx-UE in DRX active time, do you agree TX-UE can use re-transmission occasion for initial transmission?**

**Q2.3.2-1b (old issue): For mode-2 grant, if the initial transmission occasion was dropped due to no Rx-UE in DRX active time, do you agree TX-UE can use re-transmission occasion for initial transmission?**

Left issue on reporting A/N for re-transmission grant dropping

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200374 | OPPO | Proposal 2 For P8/9 of [716], for both initial transmission and re-transmission, if a mode-1 SL grant is dropped due to not in SL active time of any destination that has data to be sent, UE sends ACK to gNB by following the current MAC specification. |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 11: when mode 1 SL grant is not in SL active time of any destination that has data to be sent to, for initial transmission or retransmission and the mode 1 grant is dropped, UE sends ACK to gNB |  |
| R2-2200790 | Xiaomi | Proposal 4: UE set NACK in PUCCH if SL grant for retransmission was dropped. |  |
| R2-2200938 | Ericsson | Proposal 32 The TX UE sends NACK to the serving gNB if the mode 1 SL grant is dropped and sl-PUCCH-Config is configured. |  |
| R2-2201061 | ZTE Corporation, Sanechips | Proposal1: For both initial transmission and retransmission, it is suggested for UE to indicate NACK to gNB if mode1 SL grant is not in SL active time of any destination. |  |
| R2-2201135 | Apple | Proposal 3 when mode 1 SL grant is not in SL active time of any destination that has data to be sent, UE sends NACK to gNB if initial transmission or retransmission is dropped. |  |

One point raised by HW is that there might be a difference considering HARQ buffer is empty or not, where the former case (empty HARQ buffer) is the same as for initial transmission (for which ACK was agreed), since UE can make use of the grant for initial transmission (at least for CG, see Q2.3.2-1a/b above)

**Q2.3.2-2a (old issue): For mode-1 re-transmission grant, if the MAC PDU has been generated (i.e., the initial transmission has been performed), and the re-transmission grant is dropped due to no Rx-UE in active time, whether Tx-UE should report ACK or NACK to network via PUCCH?**

**Q2.3.2-2b (old issue): For mode-1 re-transmission grant, if the MAC PDU has NOT been generated (i.e., the initial transmission has NOT been performed), and the re-transmission grant is dropped due to no Rx-UE in active time, whether Tx-UE should report ACK or NACK to network via PUCCH?**

Based on the following agreement

6: drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. NW can set value as zero or any other value.

One left issue is the starting position of *drx-HARQ-RTT-TimerSL* in such case.

**Q2.3.2-3 (new issue): In case PSFCH is configured in resource pool and *sl-PUCCH-Config* is not configured, when to start the starting position of *drx-HARQ-RTT-TimerSL*?**

**Option-1: at the first symbol after end of PSFCH resource;**

**Option-2: at the first symbol after end of PDCCH resource;**

# DRX vs. Resource selection

Left issue on how to specify the behaviour for MAC layer to provide active-time to PHY layer

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200374 | OPPO | Proposal 6 For P15 of [716], MAC layer provides active-time to PHY layer for resource set determination, where the generation of active-time is by UE implementation. |  |
| R2-2200535 | LG Electronics France | Proposal 4. The MAC layer can provide the RX UE’s active time where SL DRX timers are running now or will be running in future (on-duration timer, Inactivity timer, retransmission timer) to the physical layer. |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 15: The format of active time content of RX UE provided by the MAC layer to the physical layer is up to UE implementation |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 16: TX UE can select TX resources within RX UE’s active time consider timers that are running, and timers that can be predicted to running, for both single MAC PDU and multiple MAC PDU cases, and for both initial transmission and retransmission cases. |  |
| R2-2200938 | Ericsson | Proposal 6 When providing active time to the Physical layer, the MAC layer prefilters destinations, to minimize the possibility that transmission to a destination cannot be made due to no overlapping between the SL grant and the active time of the destination. |  |
| R2-2200938 | Ericsson | Proposal 8 For a given destination, what type of active time (i.e., current or future active time) to be included in the active time provided by the MAC layer to the PHY layer is up to Tx UE implementation. |  |
| R2-2201478 | ITL | Proposal 1: MAC layer provide PHY layer with the Rx UE’s current active time and the other DRX related information (e.g., inactivity timer) to decide the Rx UE’s future active time |  |
| R2-2201150 | InterDigital | Proposal 1: RX UE active time for resource selection of an initial transmission resource includes current or future/expected time in which on duration (for all cast types) or inactivity timer (for unicast/groupcast only) at the RX UE are running.  |  |
| R2-2201135 | Apple | Proposal 7 How MAC layer provide “active time” to PHY layer should be specified. |  |
| R2-2201061 | ZTE Corporation, Sanechips | Proposal2: For initial transmission for single MAC PDU, the TX UE can select TX resource within RX UE’s active time. How to identify the RX UE’s active time can be up to UE implementation.  |  |

This issue was discussed in Post-116 [716], which the following result

**Rapporteur Summary: Out of 18 companies**

**Option-a: 4 (RX UE’s active time where SL DRX timers are running now.)**

**Option-b: 3 (RX UE’s active time where on duration timer will be running in future.)**

**Option-c: 0 (RX UE’s active time where inactivity timer will be running in future.)**

**Option-d: 0 (RX UE’s active time where retransmission timer will be running in future.)**

**Option-e: 14 (UE implementation)**

I.e., clear majority on leave it to UE-implementation instead of specifying all the details.

So moderator suggest a WF as follows.

1) Use normative text to capture that active-time is to be provided by MAC layer to PHY layer

2) Leave the details to UE implementation, including cast-type / destination selection, which timer to define the active-time, which can rely on NOTE

3) further details up to MAC running-CR discussion.

Examples can be as follows (based on 0550):

2> if the TX resource (re-)selection is triggered as the result of the TX resource (re-)selection check:

3> if one or multiple SL DRX is configured:

4> indicate SL DRX Active time of UE receiving SL-SCH data to the physical layer.

NOTE 3C: How the MAC entity determines active time is left to UE implementation.

**Q2.3.3-1a (old issue): Do you support to capture the “MAC layer provides active-time to PHY layer” as normative text?**

**Q2.3.3-1b (old issue): Do you agree to leave cast-type / destination selection, DRX timer selection within the active-time derivation to UE implementation (including the possibility to capture using a NOTE)**

Left issue on impact on resource selection due to DRX impact

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200374 | OPPO | Proposal 7 For P16/17 of [716], MAC layer selects resources for (re)transmission based on the resource set reported by PHY layer taking into account of the DRX information, but the detailed selection behaviour is up to UE implementation. |  |
| R2-2200483 | HW | Proposal 11: A retransmission resource can be selected if it is in active time updated according to its prior transmission, or if it can be indicated by a prior SCI. |  |
| R2-2200535 | LG Electronics France | Proposal 1. For single MAC PDU transmission, the TX UE shall select initial transmission resource and retransmission resources in the RX UE’s active time where SL DRX timers are running now or will be running in future (on-duration timer, inactivity timer, retransmission timer).  |  |
| R2-2200535 | LG Electronics France | Proposal 2. Resource selection for single MAC PDU transmission can be equally applied to the resource selection for the initial period for the multiple MAC PDUs transmission of the TX UE. |  |
| R2-2200535 | LG Electronics France | Proposal 3. Assuming that the announced periodic transmissions of the Tx UE is considered as the SL DRX active time of the Rx UE, the Tx UE can perform resource selection from the resources (announced periodic transmissions) of the non-initial period for multiple MAC PDU transmission. | Delta part due to the reservation period field |
| R2-2200938 | Ericsson | Proposal 10 For initial transmission and retransmission, both in case of single MAC PDU and multiple MAC PDUs, it is simplest for the TX UE to select resources based on the existing MAC procedures. RAN2 considers other options if their benefits are justified.  |  |
| R2-2201061 | ZTE Corporation, Sanechips | Proposal2: For initial transmission for single MAC PDU, the TX UE can select TX resource within RX UE’s active time. How to identify the RX UE’s active time can be up to UE implementation.  |  |
| R2-2201478 | ITL | Proposal 2: For the initial transmission, MAC layer should select the resource within the current Rx UE’s active time which would include both SL DRX timers are running now and on-duration timer will be running in future  |  |
| R2-2201478 | ITL | Proposal 3: For the retransmission, MAC layer could select the resource within the current & future Rx UE’s active time |  |
| R2-2201150 | InterDigital | Proposal 2: For one-shot unicast/groupcast transmissions, the TX UE selects a resource for the initial transmission from the set of resources in the RX UE’s active time. |  |
| R2-2201150 | InterDigital | Proposal 3: For one-shot unicast/groupcast transmissions, the TX UE selects at least N retransmissions within the RX UE’s active time.Proposal 4: The minimum number of retransmission resources (N) that should be selected from the RX UE’s active time is configured per priority and CBR.  | Single paper to propose a minimum number of retransmission resource (N), moderator suggest not to prioritize it for now |
| R2-2201150 | InterDigital | Proposal 5: For one-shot broadcast transmissions, the TX UE selects resources for the initial transmission and all retransmissions within the RX UE’s active time. Proposal 6: For multi-shot transmissions, the TX UE selects the resources for the initial transmission of the first TB of the multi-shot transmission from the active time of the RX UE(s). Same rules for the retransmission resources as for one-shot are applied.  | Delta part due to no inactivity/re-tx timer for BC |
| R2-2201150 | InterDigital | Proposal 7: MAC Layer selects resources associated with the active time of at least the highest priority L2 destination ID with data available for transmission and having DRX configured.  |  |
| R2-2200938 | Ericsson | Proposal 20 For groupcast, the TX UE can only select the resources for the initial transmission associated with the time in which the on-duration timer at the TX UE is running. | Delta part due to GC |
| R2-2200894 | vivo | Proposal 4: RAN2 to agree that MAC layer should prioritize to select resources in subset 1 for initial transmission and retransmission. |  |
| R2-2200894 | vivo | Proposal 5: RAN2 to discuss whether/when MAC layer can select resources in subset 2 for initial transmission and/or retransmission. |  |

By reading all proposals, there are quite some points for which paper(s) proposed (for which moderator understand proponent looks for normative text finally). These points are summarized in the following table.

NOTE that we have the following agreement

TX UE shall select initial transmission resource only in the RX UE’s active time where SL DRX timers are running now or will be running in future (at least on-duration timer). Further details of active time can be considered later. FFS on spec impact.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Broadcast | Groupcast | Unicast  |
| Initial-transmission, Single-shot, and Initial-transmission of initial period, Multi-short | On-duration timer ?? + on-duration timer to be running in the future | On-duration timer + inactivity timer + retransmission timer already running?? + on-duration timer to be running in the future?? + Inactivity timer to be running in the future?? + Re-transmission timer to be running in the future | On-duration timer already running?? + on-duration timer to be running in the future?? + Inactivity timer to be running in the future?? + Re-transmission timer to be running in the future |
| Initial-transmission of non-initial period, Multi-short | On-duration timer ?? + on-duration timer to be running in the future?? + active time due to reservation period field | On-duration timer + inactivity timer + retransmission timer already running?? + on-duration timer to be running in the future?? + Inactivity timer to be running in the future?? + Re-transmission timer to be running in the future?? + active time due to reservation period field | On-duration timer already running?? + on-duration timer to be running in the future?? + Inactivity timer to be running in the future?? + Re-transmission timer to be running in the future?? + active time due to reservation period field |
| Re-transmission, Single-shot, and Re-transmission of initial period, Multi-short | On-duration timer ?? + on-duration timer to be running in the future?? + Retransmission timer to be running in the future | On-duration timer + inactivity timer + retransmission timer already running?? + on-duration timer to be running in the future?? + Inactivity timer to be running in the future?? + Re-transmission timer to be running in the future | On-duration timer already running?? + on-duration timer to be running in the future?? + Inactivity timer to be running in the future?? + Re-transmission timer to be running in the future |
| Re-transmission of non-initial period, Multi-short | On-duration timer ?? + on-duration timer to be running in the future?? + Retransmission timer to be running in the future?? + active time due to reservation period field | On-duration timer + inactivity timer + retransmission timer already running?? + on-duration timer to be running in the future?? + Inactivity timer to be running in the future?? + Re-transmission timer to be running in the future?? + active time due to reservation period field | On-duration timer already running?? + on-duration timer to be running in the future?? + Inactivity timer to be running in the future?? + Re-transmission timer to be running in the future?? + active time due to reservation period field |

Where the bullet with ?? are the part that may have to be debated based on moderator observation, and considering the discussion in post-116 [716] as follows

Proposal 16: RAN2 should further discuss the options below for the Tx UE’s behaviour to select an initial transmission resource for single MAC PDU transmission.

a) (9/19)For initial transmission for single MAC PDU, the TX UE can select TX resource within RX UE’s active time where SL DRX timers are running now.

b) (9/19) For initial transmission for single MAC PDU, the TX UE can select TX resource within RX UE’s active time where on duration timer will be running in future.

c) (6/19) For initial transmission for single MAC PDU, the TX UE can select TX resource within RX UE’s active time where inactivity timer will be running in future.

d) (2/19) For initial transmission for single MAC PDU, the TX UE can select TX resource within RX UE’s active time where retransmission timer will be running in future.

e) (6/19) select resources according to the existing procedure in the MAC

Proposal 17: RAN2 should further discuss the options below for the Tx UE’s behaviour to select a retransmission resource for single MAC PDU transmission.

a) (9/19) For retransmission for single MAC PDU, the TX UE can select TX resources within RX UE’s active time where SL DRX timers are running now.

b) (9/19) For retransmission for single MAC PDU, the TX UE can select TX resources within RX UE’s active time where on duration timer will be running in future.

c) (9/19) For retransmission for single MAC PDU, the TX UE can select TX resources within RX UE’s active time where inactivity timer will be running in future.

d) (8/19) For retransmission for single MAC PDU, the TX UE can select TX resources within RX UE’s active time where retransmission timer will be running in future.

e) (6/19) select resources according to the existing procedure in the MAC.

Moderator understand it is hard to conclude on all details one-by-one given the controversial status and the limited, so would like to suggest a WF that

1) Use normative text to capture that MAC layer will select initial and re-transmission resource considering SL DRX timer that are running and will be running in the future.

2) Leave the details to decide “SL DRX timer that are running and will be running in the future” to UE implementation, including further difference between cast types selection, between destination selection, between initial/re-transmission, between single and multi-shot, which can rely on NOTE

3) further details up to MAC running-CR discussion.

Examples can be as follows (based on 0550):

<for initial transmission>

4> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] considering SL DRX timer that are running and will be running in the future, according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

NOTE 3C: How the MAC entity determines SL DRX timer that are running and will be running in the future is left to UE implementation.

**Q2.3.3-2a (old issue): Do you support to capture the select resource “considering SL DRX timer that are running and will be running in the future” as normative text?**

**Q2.3.3-2b (old issue): Do you agree to leave** **further difference between cast types selection, between destination selection, between initial/re-transmission, between single and multi-shot to UE implementation (including the possibility to capture using a NOTE)**

Left issue on impact on resource re-selection of retransmission resources due to DRX re-transmission timer.

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200545 | SHARP Corporation | Proposal 1: For resource re-selection of the pre-emption check in SL DRX, the re-selected resource is not earlier than the pre-empted resource in time domain. |  |
| R2-2200545 | SHARP Corporation | Proposal 2: For resource re-selection of the pre-emption check in SL DRX, the time gap between the re-selected resource and the pre-empted resource is not larger than the duration of SL HARQ Retransmission timer. |  |
| R2-2200894 | vivo | Proposal 9: RAN2 further discuss, when pre-emption is allowed, Tx UE does not reselect a resource earlier than the pre-empted resource. |  |
| R2-2200894 | vivo | Proposal 10: RAN2 kindly asks RAN1 to consider the issue of the miss-reception on the resource reselection if the resource revaluation and/or pre-emption are enabled. Details is up to RAN1. |  |
| R2-2200894 | vivo | Proposal 11: If Proposal 10 is agreed, RAN2 sends an LS to RAN1 for feedback (see Annex). |  |
| R2-2200894 | vivo | Proposal 12: Relying on the SCI-based resource reservation, RAN2 studies the determination mechanism for HARQ RTT timer by setting the warm-up window. |  |
| R2-2201150 | InterDigital | Proposal 9: A TX UE which performs re-selection of retransmission resources due to pre-emption ensures that the newly selected re-transmission resource does not occur earlier in time than the pre-empted resource when communicating to an RX UE in DRX |  |
| R2-2201150 | InterDigital | Proposal 10: If RAN2 agrees to the above proposal, send LS to inform RAN1. |  |

Moderator understand it is the result of introducing SCI based RTT timer, and the resource reselection operation is done at MAC layer after receiving set-A reported by PHY layer.

**Q2.3.3-3 (old issue): Do you agree that for resource reselection due to pre-emption, the reselected resource should be not earlier than the pre-empted resource in time domain?**

Left issue on the need of resource (re)selection trigger considering DRX impact

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200318 | CATT | Proposal 12: For mode 2 Tx UE, resource (re)selection needs to be triggered when there is no SL grant can be used in SL DRX active time for the destination which has SL data available for transmission. And the (re) selected SL grant shall be in SL DRX active time. |  |
| R2-2200483 | HW | Proposal 12: If the current reserved resources do not fall into the SL DRX active time of any destination, or if there is no SL grant in the SL active time of the destination that has data to be sent, resource (re)selection is triggered. |  |
| R2-2200545 | SHARP Corporation | Proposal 3: If SL DRX is configured or re-configured, e.g. leading to the change of active time, MAC entity shall trigger the TX resource (re-)selection. | Single paper for the proposal, moderator suggest not to prioritize for now |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 6: Resource (re)selection triggers to PHY are a) when new data becomes available for transmission and on-duration timer is running; b) when Inactivity timer is (re)started and c) when CSI request is sent to the Rx UE. | Single paper for the proposal, moderator suggest not to prioritize for now |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 7: MAC can trigger resource selection with PHY in the next start of on-duration timer i.e., in the next DRX cycle period when PDB still allows it, if the remaining active time is less than T1. | Single paper for the proposal, moderator suggest not to prioritize for now |
| R2-2200938 | Ericsson | Proposal 9 The MAC layer triggers resource reselection if the MAC layer cannot find sufficient resources in the reported set of resources to be aligned with the active time of the desired destination. |  |
| R2-2201150 | InterDigital | Proposal 8: A TX UE triggers resource (re)selection if there are no selected sidelink grants which fall in the active time of a L2 destination ID having data available for transmission.  |  |

This issue has been discussed in At-116 [706], with the following minutes

[Proposal 8] RAN2 to choose among below options for triggering resource (re)selection:

Option 1: If the current reserved resources do not fall into the SL DRX active time of any destination. (10/18)

Option 2: If there is no SL grant in the SL DRX active time of the destination that has data to be sent. (13/18)

Option 3: If the MAC layer cannot find resources in the reported set of resources to be aligned with the active time of any desired Destination. (6/18)

Option 4: No trigger needed. (3/18)

* Skipped.

Moderator suggest to focus on the option-1/2 to make final conclusion

**Q2.3.3-4 (old issue): Do you agree to introduce additional resource reselection trigger as follows?**

**Option 1: If the current reserved resources do not fall into the SL DRX active time of any destination.**

**Option 2: If there is no SL grant in the SL DRX active time of the destination that has data to be sent.**

# Capability

# Capability for SL-DRX

Left issue on UE capability for SL-DRX

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200373 | OPPO | Proposal 6 For R17 SL Broadcast and Groupcast, support DTX as conditionally mandatory per-UE capability without capability bit in PC5-RRC, and FFS whether to define DRX capability as mandatory or optional per-UE capability without capability bit in PC5-RRC. |  |
| R2-2200373 | OPPO | Proposal 7 For R17 SL unicast, for the capability of DCR message delivery, follow the same conclude for broadcast and groupcast. |  |
| R2-2200373 | OPPO | Proposal 8 For R17 SL unicast, define DTX/DRX capability for SL unicast data transmission as optional per-UE capability with capability bits in PC5-RRC, with no FR1-FR2 or FDD-TDD differentiation. FFS whether separate capability is needed for DTX and DRX. |  |
| R2-2200373 | OPPO | Proposal 9 For R17 SL unicast, define DTX/DRX capability for SL unicast data transmission as optional per-UE capability with capability bits in Uu-RRC. Follow the conclusion in Proposal 7 above on whether to define separate capability bit for DTX and DRX. |  |
| R2-2200373 | OPPO | Proposal 10 For R17 SL broadcast and groupcast, if Proposal 9 concludes that DRX capability being optional, define per-UE DRX capability bit for SL broadcast and groupcast in Uu-RRC. FFS whether to define separate capability bit for broadcast and groupcast. FFS whether to define capability bit for DTX in Uu-RRC. |  |
| R2-2200373 | OPPO | Proposal 11 For R17 SL, RAN2 discuss whether to define capability of SL-related RTT timer and Re-transmission timer for PDCCH monitoring as conditionally mandatory or optional per-UE capability with capability bit. with no FR1-FR2 or FDD-TDD differentiation. |  |

Firstly, question on whether to define different capability for cast-types, DTX for Tx-UE and DRX for Rx-UE.

**Q2.3.4-1a (new issue): Do you prefer to define separate capability for different cast types (except for UC-based DCR message, which is up to Q2.3.4-1c below)?**

**Option-1: a single capability covering all cast types**

**Option-2: separate capability for Unicast and for Broadcast + Groupcast**

**Option-3: separate capability for each cast type**

**Q2.3.4-1b (new issue): Do you prefer to define separate capability for Tx and Rx for DRX?**

**Option-1: single capability covering both Tx and Rx side**

**Option-2: separate capability for Tx and Rx side**

**Q2.3.4-1c: For UC-based DCR message, do you agree to follow the conclusion of BC related capability?**

Secondly, question on the detailed attributive for each capability (regardless of whether combined or separate capability is defined, which will depend on the output of Q2.3.4-1a/b above)

|  |  |  |  |
| --- | --- | --- | --- |
|  | UC | GC | BC |
| DTX | Optional per-UE capability with capability bits in PC5-RRC, with no FR1-FR2 or FDD-TDD differentiationwith capability bits in PC5-RRC, with no FR1-FR2 or FDD-TDD differentiation | Conditionally mandatory per-UE capability Without capability bit in PC5-RRCWith capability bit in Uu-RRC with no FR1-FR2 or FDD-TDD differentiation | Conditionally mandatory per-UE capability Without capability bit in PC5-RRCWith capability bit in Uu-RRC with no FR1-FR2 or FDD-TDD differentiation |
| DRX | Optional per-UE capability with capability bits in PC5-RRC, with no FR1-FR2 or FDD-TDD differentiationwith capability bits in PC5-RRC, with no FR1-FR2 or FDD-TDD differentiation | Conditionally mandatory per-UE capability Without capability bit in PC5-RRCWith capability bit in Uu-RRC with no FR1-FR2 or FDD-TDD differentiation | Conditionally mandatory per-UE capability Without capability bit in PC5-RRCWith capability bit in Uu-RRC with no FR1-FR2 or FDD-TDD differentiation |

**Q2.3.4-1d (new issue): for DTX + UC case, any aspect in the table that you disagree?**

**Q2.3.4-1e (new issue): for DTX + GC case, any aspect in the table that you disagree?**

**Q2.3.4-1f (new issue): for DTX + BC case, any aspect in the table that you disagree?**

**Q2.3.4-1g (new issue): for DRX + UC case, any aspect in the table that you disagree?**

**Q2.3.4-1h (new issue): for DRX + GC case, any aspect in the table that you disagree?**

**Q2.3.4-1i (new issue): for DRX + BC case, any aspect in the table that you disagree?**

# Capability for Uu-DRX

Left issue on UE capability for SL-DRX

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc** | **Company** | **Proposals**  | **Moderator‘s remark and recommendation** |
| R2-2200373 | OPPO | Proposal 11 For R17 SL, RAN2 discuss whether to define capability of SL-related RTT timer and Re-transmission timer for PDCCH monitoring as conditionally mandatory or optional per-UE capability with capability bit. With no FR1-FR2 or FDD-TDD differentiation. |  |

**Q2.3.4-2a (new issue): Do you agree to introduce capability of SL-related RTT timer and Re-transmission timer for PDCCH monitoring?**

**Q2.3.4-2b (new issue): if yes to 2a above, do you disagree any component of the attributive of this capability (conditionally mandatory, per-UE, without FR1/2 diff, and without FDD/TDD diff)?**

# Companies Input on section 2.3 for Phase-1

Please share your view on the open issue list above (even companies can input using multiple rows for different questions/issues)

|  |  |  |
| --- | --- | --- |
| **Company** | **Concerned question** | **Comment** |
| Xiaomi |  | There seems to be a missing open issue regarding whether drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH(ACK) transmission is dropped.Note we already agreed the PUCCH(NACK) drop case in this meeting as following,drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH (NACK) transmission is dropped.**[OPPO] I though the Q2.3.1-1 can cover the FFS point.****[Xiaomi] Q2.3.1-1 aims at timers running on sidelink, i.e. *sl-drx-RetransmissionTimer*. Here, I mean the timers running on Uu, i.e. *drx-RetransmissionTimerSL*****[OPPO] fail to get the point here. We understand (and also confirmed by WI rapp who led the [POST116-e][716]), the following agreement already conclude this issue (NACK-only start retx timer) without FFS point left.**(11/17) Proposal 19: RAN2 confirms that drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH (NACK) transmission is dropped.[Xiaomi] I understand RAN2 didn’t conclude whether drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH(ACK) transmission is dropped. Seems rapporteur thinks this case has been excluded. We can wait for other companies’ view. |
| Xiaomi | Q2.3.1-1 | According to the quoted contributions, 2 companies support to start RTX timer and 1 company prefer not to start, while 1 company didn’t explicitly express the view. I think it’s better to list the two options rather than propose not to start directly.[OPPO] Reworded. |
| Xiaomi | Q2.3.1-3a | I’m confused with the question. What’s the meaning of ‘same’ or ‘different’ here. In the question, the scenario is resource pool is not configured with PSFCH, so it’s always FB-disabled. I only see two kinds of methods, derived from SCI or configured value. Certainly the configured value can’t be the same as the one derived SCI. **[OPPO] The Q is limited to configured RTT case only. See if the reformulated Q is comprehensive now.****[Xiaomi] I understand the intention is to say whether different RTT timer should be used depending on resource pool with/without PSFCH. In this sense, maybe it’s better to remove the ‘For resource pool where PSFCH is not configured’ in the questionnaire. It may cause confusion that the question is only valid for resource pool without PSFCH.**[OPPO] no strong view but to me the current Q formulation is clear enough (indeed I do not see a FFS point for resource pool with PSFCH), will wait for more comment to decide. |
| Xiaomi |  | Proposal 11 in R2-2200791 is not included in the open issue list. **Proposal 11: If RX UE is not able to monitor SL in the rest time of on-duration or inactivity timer running, e.g. due to UL/SL transmission or lack of reception resource, RX UE sends indication to TX UE. TX UE stop DRX timers associated with RX UE.**The proposal intends to resolve the active time misalignment between TX and RX UE. RX UE may not be able to monitor SL if there is SL/UL transmission during active time. But TX UE would still assume RX UE active according to timer running, which may result in RX UE missing data reception. We think this can be included in the open issue list.[OPPO] sorry for missing that, now added into 2.4.2 section below, suggest not to trigger it as an essential issue. |
| Xiaomi |  | There seems to be another open issue regarding how to start the *drx-HARQ-RTT-TimerSL*, which is running on Uu, if PUCCH is not configured. In 116b meeting, following agreement is reached. But it’s not clear how to start *drx-HARQ-RTT-TimerSL*.drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. NW can set value as zero or any other value[OPPO] there seems a point here, added using Q2.3.2-3. |
| LG |  | RAN2 should decide whether drx-HARQ-RTT-TimerSL is supported or not in case PSFCH is not configured in resource pool and sl-PUCCH-Config is not configured. [OPPO] Indeed, added. |
| Huawei, HiSilicon | To add a new issue | In the email [POST115-e][715] of the last meeting, some companies agreed if the SL DRX onduation timer is calculated based on physical slot, there may be no SL slot available in the onduartion of some SL DRX cycles, which could impact the SL service delay performance. So the following FFS was made: 4: The SL DRX timers should be calculated in the unit of physical slot. FFS whether the case may happen that no SL slots are available in UE’s active time and whether/how to solve it.Therefore, we think this issue should be added to 2.3 such as the following.Q2.3-X: When the SL DRX timers are calculated in the unit of physical slot, do you think that the SL service latency performance may get worse?Option-1: Yes;Option-2: No.Q2.3-Y: When the SL DRX timers are calculated in the unit of physical slot, which solution do you support to handle the issue of the SL service latency performance getting worse?Option-1: Allow to extend the SL DRX timer when the number of “available slots” in the original running time is smaller than a threshold or the number of “unavailable slots” in the original running time is larger than a threshold;Option-2: If the start time of onduration/inactivity/retransmission timer does not lie within available slot, delay the start time to the nearest available slot.Option-3: Others.Option-4: None.[OPPO] Given the number of open issues here, moderator tend to avoid listing this as an critical issue to follow the following guidance by Johan, similar to other issues that deprioritized.* **Open Issues** should be defined for **aspects that need to be closed**, important to make already agreed functionality work in a reasonable way. Not yet agreed optimizations that may not be needed shall **not** be listed as Open Issues.
 |
| Huawei, HiSilicon | Q2.3.1-1 | Agree with Xiaomi.[OPPO] Reworded. |
| Huawei, HiSilicon | To add a new issue | the following agreement was agreed in RAN2#116bis, however, it is FFS how to handle the case where PSFCH is not configured.(11/19) Proposal 6 (modified): drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. NW can set value as zero or any other value. * Agreed.

[InterDigital, OPPO, LG, Xiaomi, Lenovo, CATT]: HARQ RTT should be support since it is already supported for Uu case. [OPPO]: Since PSFCH is configured, there will be UE power saving gain with HARQ RTT. [Ericsson, Qualcomm]: The gNB can schedule immediately after the previous resource allocation if no PUCCH is configured. In the case, there is no need of HARQ RTT. [Session chair]: With the configured HARQ RTT, can’t we still achieve Ericsson/Qualcomm intention (e.g. HARQ RTT value is configured as “0” or HARQ RTT is optional and not present)? [Huawei]: what about the case PSFCH is not configured and PUCCH is not configured? In this case, it seems clear HARQ RTT is not needed at all. [OPPO]: We need separate discussion on that case. [OPPO] same comment as LG, added. |
| Huawei, HiSilicon | To add a new issue | In RAN2 #114, the following agreement was achievedWhen sl-PUCCH-Config is configured (and the PUCCH is transmitted), the UE should start the SL-specific drx-HARQ-RTT-Timer in Uu for the corresponding SL HARQ process in the first slot after the end of the corresponding transmission carrying the SL HARQ feedback via the PUCCH.However, even if sl-PUCCH-Config is configured, it is allowed/possible that gNB does not schedule PUCCH resource for HARQ feedback. In this case, when to start the SL-specific drx-HARQ-RTT timer in Uu?[OPPO] Added (I thought it can be handled by running-CR, yet after check with Chairman, it seems better to cover the issues related to running-CR as well) |
| InterDigital | Q2.3.3-3 | Related to this question, there may also be the need to ask if it is relevant to send LS to RAN1 (even if the spec impact is only at RAN2) |
| CATT | To add a new issue | As in our R2-2200318 P12/P13, according to agreement in RAN1#107-e, MAC layer will provide the active time information to PHY layer, the PHY layer could select and report candidate resources in active time and the non-active time. Hence, when a Tx UE is in DRX active time of a destination (for sidelink unicast), and there is SL data to the destination available for transmission, but there isn’t SL grant can be used within DRX active time for the destination, resource (re)selection (mode 2) needs to be triggered. And the selected grant shall match the DRX configuration of the destination. In our view, it is an important procedure to be considered in the MAC if there is no SL grant could be used in the SL active time for the destination which has SL data available for transmission. Besides, for Uu interface, when UE sends SR, it will keep in active time in Uu. But for PC5, whether the same mechanism in Uu can be reused?. So, we propose below issues, Q2.3-X: For mode 2 Tx UE, does resource (re)selection need to be triggered when there is no SL grant can be used in SL DRX active time for the destination which has SL data available for transmission, and the (re) selected SL grant shall be in SL DRX active time?Q2.3-Y: When UE sends sidelink SR to network, whether it should keep in active time in sidelink? |
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# Others

Based on the Chairman guidance on categorization

* **Each open issue** should be associated with **suggested treatment/handling**.
	1. **Company input into Pre117-e-offline (i.e. no company tdocs)**
	2. Company tdocs invited.
	3. CR rapporteur handled issue
	4. Other, e.g. immature area, reference to dependency, unclear status etc.

The issues in this section is of category-4.

# Proposals concluded in 116bis

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200264 | ZTE Corporation, Sanechips | Proposal 5 For a mode 2 RRC-CONNECTED TX UE, whether TX UE or serving cell of the Tx UE decides the SL DRX configuration of RX UE should be decided and indicated by the network.  | 6: For unicast and TX UE in RRC CONNECTED and Mode 2 RA, TX UE determines SL DRX for RX UE. |
| R2-2200318 | CATT | Proposal 1: For SL UC, Tx UE in OOC can determine the SL DRX configuration without relying on pre-configuration. | 3: For IDLE/INACTIVE/OOC UE, It is up to TX UE implementation to set sl-DRX-ConfigUC-PC5. |
| R2-2200318 | CATT | Proposal 2: For SL UC, Tx UE in IDLE/INACTIVE can determine the SL DRX configuration without relying on SIB. | 3: For IDLE/INACTIVE/OOC UE, It is up to TX UE implementation to set sl-DRX-ConfigUC-PC5. |
| R2-2200374 | OPPO | Proposal 4 For P11/12 of [716], RAN2 should discuss the feasible solution to perform the down selection of DRX cycle and on-duration timer before confirming the WA. |  |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 7: An Assistance Information REQ msg from Tx to Rx UE for seeking assistance information is not supported. | 14: The SL DRX assistance information request from Tx UE to Rx UE is not supported in the current release. |
| R2-2200544 | LG Electronics France | Proposal 13: Unicast-specific pre-configuration for SL DRX is not used in the OoC case. |  |
| R2-2200318 | CATT | Proposal 11: SL specific drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. | 6: drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. NW can set value as zero or any other value. |
| R2-2200791 | Xiaomi | Proposal 1: Unicast sidelink DRX configuration is per direction for IC. |  |
| R2-2200938 | Ericsson | Proposal 1 Support applying DRX configuration per both directions in addition to per-direction DRX operation. |  |
| R2-2200938 | Ericsson | Proposal 2 DRX operation option (i.e., DRX operation for both direction or per-direction DRX operation) is configurable.  |  |
| R2-2200938 | Ericsson | Proposal 11 The priority order of SL DRX Command MAC CE is between SL CSI Reporting MAC CE and data from any STCH. | 1: The priority order of Sidelink DRX Command MAC CE is between Sidelink CSI Reporting MAC CE and data from any STCH. |
| R2-2200938 | Ericsson | Proposal 12 Allow a UE to transmit a SL DRX Command MAC CE alone in a MAC PDU. | 3: For the same pair of L2 SRC/DST ID, the SL DRX command MAC CE can be transmitted alone or with data in the MAC PDU. |
| R2-2200938 | Ericsson | Proposal 13 Do not introduce a specific SR resource or SR configuration for requesting SL resource for transmitting SL DRX Command CE. | 5: RAN2 does not define a separate SR configuration for SL DRX Command MAC CE. |
| R2-2201135 | Apple | Proposal 1 Capture “SL DRX Command MAC CE has a lower priority than SL-SCI reporting MAC CE in LCP“ in MAC specification w/o changing the priority order list in clause 5.22.1.4.1. | 1: The priority order of Sidelink DRX Command MAC CE is between Sidelink CSI Reporting MAC CE and data from any STCH. |
| R2-2201135 | Apple | Proposal 8 RRC\_CONNECTED RX UE reports SL-DRX configuration to its serving gNB after RX UE accepting the received sidelink DRX configuration. | 6: UE reports sidelink DRX configuration to its serving gNB, upon accepting sidelink DRX configuration information from the peer UE. |
| R2-2201135 | Apple | Proposal 9 RRC\_CONNECTED mode 2 TX UE determining SL DRX configuration w/o gNB involvement should be supported. | 6: For unicast and TX UE in RRC CONNECTED and Mode 2 RA, TX UE determines SL DRX for RX UE. |
| R2-2201523 | Lenovo, Motorola Mobility | Discussion for proposals of [POST116-e][715]Proposal 4: If the RX UE determines the acceptance or rejection of SL DRX configuration for UC received from peer UE, the Rx UE UE reports sidelink DRX configuration to its serving gNB after UE accepting the received sidelink DRX configuration | 6: UE reports sidelink DRX configuration to its serving gNB, upon accepting sidelink DRX configuration information from the peer UE. |
| R2-2200938 | Ericsson | Proposal 22 For unicast, when a TX UE is in RRC\_CONNECTED, the serving gNB of the TX UE determines the SL DRX configurations for the RX UE, regardless of whether Mode 1 scheduling or Mode 2 resource allocation is adopted.Proposal 23 For unicast, the RX UE determines by itself whether to accept or reject the SL DRX configurations of the RX UE received from the TX UE. |  |
| R2-2200893 | vivo | Proposal 3 UE reports SL DRX configuration to its serving gNB, only if the UE accepts and successfully completes the SL DRX configuration receiving from its peer UE. |  |
| R2-2200484 | Huawei, HiSilicon | Proposal 1: For the case when PUCCH resource is not scheduled, the UE does not start the drx-HARQ-RTT-TimerSL for the corresponding SL HARQ process.  | 6: drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. NW can set value as zero or any other value. |
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| R2-2200762 | Lenovo, Motorola Mobility | Proposal 10: support drx-HARQ-RTT-TimerSL in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured |  |
| R2-2200790 | Xiaomi | Proposal 3: UE set ACK in PUCCH if SL grant for initial transmission was dropped. |  |
| R2-2200938 | Ericsson | Proposal 14 When HARQ feedback is disabled and the resource assignment information is not present in SCI, the HARQ RTT timer should be set to be zero. | 7: UE uses configured sl-drx-HARQ-RTT-Timer value when the resource assignment information for the next re-transmission does not exist in the SCI regardless of whether HARQ feedback is enabled or disabled. |
| R2-2200938 | Ericsson | Proposal 30 SL-specific drx-HARQ-RTT-Timer is not needed when sl-PUCCH-Config is not configured. |  |
| R2-2200938 | Ericsson | Proposal 7 Upon reception of a SL grant, the MAC layer selects a suitable destination based on active time of each destination so that the utilization of the granted SL resources is maximized. | 14: Tx UE should select a destination associated with an Rx UE that is in SL active time for the SL transmission occasion in SL LCP. |
| R2-2201135 | Apple | Proposal 2 drx-HARQ-RTT-TimerSL is not supported if sl-PUCCH-Config is not configured. |  |
| R2-2200318 | CATT | Proposal 7: drx-RetransmissionTimerSL is started after drx-HARQ-RTT-TimerSL expires regardless of whether the unsent PUCCH is ACK or NACK. | 15: drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH (NACK) transmission is dropped. |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 17: Confirm drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH (NACK) transmission is dropped | 15: drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH (NACK) transmission is dropped. |
| R2-2200790 | Xiaomi | Proposal 2: If PUCCH was dropped regardlss NACK or ACK, UE should start the SL-specific drx-RetransmissionTimer in Uu for the corresponding HARQ process in the first symbol after the expiry of the SL-specific drx-HARQ-RTT-Timer. |  |
| R2-2200938 | Ericsson | Proposal 31 In case PUCCH is dropped due to UL/SL prioritization, drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the unsent PUCCH is NACK. |  |
| R2-2201582 | Samsung Research America | [Proposal 1]: SUI is used to report SL DRX configurations to the gNB. | 1: UE uses SUI to report sidelink DRX configuration or sidelink assistance information to its serving gNB. |
| R2-2200938 | Ericsson | Proposal 26 Existing Uu RRC message could be used by the RX UE to report the received SL DRX configurations. |  |
| R2-2200264 | ZTE Corporation, Sanechips | Proposal 9 If the RRC CONNECTED UE is configured with sidelink DRX for SL groupcast/broadcast, it shall report the related SL DRX configuration to the serving cell, then the serving cell can decide whether to update Uu DRX. |  |
| R2-2200319     | CATT | Proposal 1: TX/RX UE selects the maximum length among the on-duration timer associated with the QoS profile(s) of selected DRX cycle. |  |
| R2-2200319  | CATT | Proposal 2: When UE fails to decode the MAC PDU in GC, it will not trigger the inactivity timer, the retransmission timer will be initialized and keep UE in active time as legacy behavior. |  |
| R2-2200319  | CATT | Proposal 3: Rel-17 Tx UE in RRC\_CONNECTED state should report its SL DRX configuration of SL GC/BC to network. |  |
| R2-2200319  | CATT | Proposal 4: For Rel-17 Tx UE using SL GC/BC, it can notify which L2 destination ID will use SL DRX and the detailed sidelink DRX configuration to gNB via sidelinkUEInformationNR. |  |
| R2-2200483 | HW | Proposal 9: the sl-drx-startoffset can be determined with the following equation:n=DST L2 ID MODE Nwhere N is the total number of sl-drx-startoffset values, and n is an index in the N sl-drx-startoffset values |  |
| R2-2200528 | Intel Corporation | Proposal 3: RAN2 is proposed to confirm the working assumption on down-selection for DRX cycle and on-duration timer, i.e. down selection of DRX cycle and on-duration timer for GC/BC is needed in case multiple QoS profiles are associated with the same L2 DST ID. |  |
| R2-2200528 | Intel Corporation | Proposal 4: For down-selection of on-DurationTimer and DRX cycle, the UE selects the longest timer duration/cycle value to ensure that missed transmissions during DRX sleep are minimized. |  |
| R2-2200535 | LG Electronics France | Proposal 7. RAN2 should not force a down-selection of one SL DRX cycle/one SL DRX onduration timer that may degrade the performance of power-saving of the UE or may cause a problem of not satisfying the QoS requirements of some SL GC/BC services. |  |
| R2-2200535 | LG Electronics France | Proposal 8. As a compromised solution, RAN2 should support both UE behaviour that can down-select one SL DRX cycle among multiple SL DRX cycles and UE behaviour that can select the shortest “N” SL DRX cycles according to its (pre)configuration.  |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 13: TX/RX UE selects the length of the on-duration timer associated with the same QoS profile of selected DRX cycle |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 14: Inactivity timer is not (re)started in case of MAC PDU decoding failure (i.e., only L1 DST ID is available) for GC |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 18: #113-e meeting's agreement also apply to GC NACK only case: If the RX UE does not transmit PSFCH for a HARQ enabled transmission (e.g. due to UL/SL prioritization or ACK) the RX UE still starts the HARQ RTT timer in the symbol/slot following the end of PSFCH resource |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 19: sl-drx-RetransmissionTimer is started if PSFCH (NACK) transmission is dropped (due to UL/SL prioritization) in GC NACK only |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 21: sl-drx-StartOffset (ms) = DST L2 ID MOD (number of offset values) |  |
| R2-2200790 | Xiaomi | Proposal 1: UE reports the SL DRX information, e.g. QoS profile, of the broadcast and groupcast destination, which UE is interested in reception. |  |
| R2-2200791 | Xiaomi | Proposal 12: Confirm the WA pf down-selection for DRX cycle and on-duration for GC/BC when multiple QoS profiles are associated with the same DST L2 ID. |  |
| R2-2200791 | Xiaomi | Proposal 13: Select the length of the on-duration timer associated with the QoS profile, which is associated with the smallest DRX cycle. |  |
| R2-2200791 | Xiaomi | Proposal 14: In NACK only HARQ feedback, UE does not start the HARQ RTT timer, if PSFCH is not transmitted. |  |
| R2-2200894 | vivo | Proposal 6: Due to many uncertain specification efforts required in Option-1, RAN2 confirms Option-5 to determine the sl-drx-startoffset. |  |
| R2-2200894 | vivo | Proposal 7: Introduce the equation to set sl-drx-SlotOffset as follows:- sl-drx-SlotOffset (ms)= 1/32 ◊ (DST L2 ID MOD 32) |  |
| R2-2200894 | vivo | Proposal 8: TX/RX UE selects the length of the on-duration timer associated with the same QoS profile of selected DRX cycle. |  |
| R2-2200938 | Ericsson | Proposal 17 For GC and BC, no need to down-select one DRX cycle from available DRX cycles. |  |
| R2-2200938 | Ericsson | Proposal 18 For GC and BC, no need to down-select one DRX on-duration timer from available DRX on-duration timers. |  |
| R2-2200938 | Ericsson | Proposal 19 For GC and BC, determine the sl-drx-startoffset using Option-1, i.e., derive an index to the N sl-drx-startoffset values based on DST L2 ID. |  |
| R2-2200938 | Ericsson | Proposal 27 For groupcast or broadcast, the TX UE may report assistance information (e.g., SidelinkUEInformationNR) to its serving gNB regarding traffic type (e.g., associated L2 ID or PQI). |  |
| R2-2200938 | Ericsson | Proposal 28 For groupcast or broadcast, the RX UE may report assistance information (e.g., SidelinkUEInformationNR) to its serving gNB regarding SL DRX configurations adopted for its GC/BC reception. |  |
| R2-2200938 | Ericsson | Proposal 29 For groupcast or broadcast, no additional mechanism is needed in order to achieve alignment of Uu DRX and SL DRX. |  |
| R2-2201061 | ZTE Corporation, Sanechips | Proposal3: for GC NACK only,if the RX UE does not transmit PSFCH for a HARQ enabled transmission, RX UE also need to start the HARQ RTT timer if RX UE does not transmit the feedback. |  |
| R2-2201135 | Apple | Proposal 5 To solve the down-selection among multiple SL\_DRX configurations for the same GC/BC L2 destination ID: a): onDurations of different PQI set to identical value;b): DRX cycle can be chosen from the set [T, 2T…, 2nT] as the busiest cycle T used for the PQI corresponding to the most stringent latency requirements. |  |
| R2-2201135 | Apple | Proposal 6 UE behavior for decoding failure is to not (re)start inactivity timer. No further optimization is needed. |  |
| R2-2201135 | Apple | Proposal 11 For mode 1 RRC\_CONNECTED UE engaged with SL broadcast/groupcast, if alignment is desired, in principle, gNB should align the Uu DRX configuration to match the SL DRX configuration. FFS exceptions.  |  |
| R2-2201152 | InterDigital | Proposal 5: RAN2 confirms the working assumption of the need of down-selection for DRX cycle and on-duration for GC/BC when multiple QoS profiles are associated with the same L2 ID.  |  |
| R2-2201152 | InterDigital | Proposal 6: The TX/RX UE determines the DRX cycle applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the minimum DRX cycle configured for any of the QoS profiles associated with that L2 destination ID |  |
| R2-2201152 | InterDigital | Proposal 7: The TX/RX UE determines the on duration applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the maximum on duration configured for any of the QoS profiles associated with that L2 destination ID |  |
| R2-2201582 | Samsung Research America | [ [Proposal 4]: For GC/BC, SL DRX configuration is not needed in the report. |  |
| R2-2201585 | Samsung Research America | [Proposal 1]: For GC/BC, RAN2 is asked to confirm working assumption (down-selection for DRX cycle and on-duration for GC/BC when multiple QoS profiles are associated with the same DST L2 id) as an agreement.  |  |
| R2-2201585 | Samsung Research America | [Proposal 2]: For GC/BC, it is proposed to down-select to the shortest DRX cycle length and the longest on-duration length if down-selection is needed. |  |
| R2-2200938 | Ericsson | Proposal 35 A RX UE may determine SL DRX to be disabled when a new service becomes available and the TX profile of the new service doesn’t allow SL DRX to be applied. | Moderator understand this issue is concluded by the following agreement:For GC/BC only communication, a Rel-17 RX UE determines SL DRX is used if **all service types**/L2 ids of interest have an associated TX profile corresponding to support of SL DRX. A Rel-17 RX UE enables SL DRX operation for a service type/L2 id with the associated TX profile. |
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# Other proposals

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| **Tdoc** | **Company** | **Proposals**  | **Moderator’s remark and recommendation** |
| R2-2200264 | ZTE Corporation, Sanechips | Proposal 3 The TX UE can reconfigure SL DRX configuration for the RX UE by its own when the timer T310/T311 is running.  | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200264 | ZTE Corporation, Sanechips | Proposal 4 RAN2 is suggested to discuss following two options during handover procedure for TX UE: Option 1: The TX UE can reconfigure SL DRX configuration for the RX UE by its own when the timer T304 is running.Option 2: The target cell provides the SL DRX configuration for the RX UE to the TX UE via source cell during the handover procedure. Then the TX UE delivers the received SL DRX configuration from target cell to the RX UE after TX UE completes handover to the target cell. | Moderator assume we can rely on legacy handling during HO as for non-DRX SL configuration |
| R2-2200318 | CATT | Proposal 6: For sidelink unicast, the desired DRX configuration should be sent based on each L 2 destination ID. | Moderator assume it is already this manner |
| R2-2200535 | LG Electronics France | Proposal 9. If the SL DRX command MAC CE is triggered, but a UE determines that the grant will not be allocated within the current SL DRX cycle in consideration of processing time, etc., the UE should be able to cancel the triggered BSR (or pending SR). If a grant for the SL DRX command MAC CE is allocated in the next SL DRX cycle, the grant should be discarded and the transmission of the SL DRX command MAC CE should be cancelled. | Moderator understand DRX command MAC CE is not DRX cycle specific, so no issue here |
| R2-2200544 | LG Electronics France | Proposal 8: The serving cell of TX UE reports assistant information received from TX UE to the target cell for TX UE’s handover.  | Given SUI message forwarding will happen during HO preparation, moderator assume the info included SUI would be forwarded as well |
| R2-2200544 | LG Electronics France | Proposal 9: When TX UE performs handover to the target cell, the target cell gives Uu DRX and SL DRX configuration for the TX UE through serving gNB. | Moderator understand it is the same procedure as for non-DRX configuration |
| R2-2200544 | LG Electronics France | Proposal 10: After TX UE completes handover to the target cell, the TX UE delivers SL DRX configuration received from target gNB through serving gNB to the RX UE. | Moderator understand it is the same procedure as for non-DRX configuration |
| R2-2200544 | LG Electronics France | Proposal 12: When RRC\_IDLE/INACTIVE or OoC TX UE supporting SL DRX becomes RRC\_CONNECTED, if the serving gNB of TX UE doesn’t configure to provide SL DRX related information, TX UE can keep performing priori SL DRX. | Moderator understand it is the same procedure as for non-DRX configuration |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 9: For unicast transmissions, one additional condition is required for the destination selection, that Tx UE considers only those SL LCH(s) for the selection of the Destination whose corresponding DRX ActiveTime matches with the allocated SL resources, e.g. SL resources allocated by gNB are within the DRX ActiveTime of the SL LCH(s). | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2201135 | Apple | Proposal 12 For mode 1 RRC\_CONNECTED UE engaged with SL unicast, if alignment is desired, TX UE incorporated the alignment requirement as QoS latency requirements and shared with the peer RX UE during the SL DRX negotiation procedure. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200938 | Ericsson | Proposal 24 For unicast and Tx UE is in RRC\_CONNECTED, alignment between Uu DRX of the Tx UE and SL DRX of the Rx UE is up to the serving gNB of the TX UE.Proposal 25 Alignment between Uu DRX of the Rx UE and SL DRX of the Rx UE is up to the serving gNB of the RX UE. | Since it is mainly about gNB implementation, suggest not to prioritize for now |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 4: In groupcast communication, a new transmission may not be made when drx-HARQ-retransmission timer is running. | Considering it has been discussed at 116, moderator suggest not to prioritize this issue For GC: - Option1: Initial transmission is allowed during the time when on-duration and inactivity timer run. - Option2: Initial transmission is allowed during any active time. Option 1: Qualcomm, Lenovo, IDT, Huawei, Ericsson (5)Option 2: LG, OPPO, Nokia, Intel, Apple, MediaTek, NEC, ZTE, Fraunhofer, ASUSTek (10) |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 5: Latest DRX configuration is sent to PHY for resource selection triggers for a certain destination. | Moderator understand the conclusion is to send active time instead of DRX configuration to PHY |
| R2-2200318 | CATT | Proposal 13: For mode 1 Tx UE, SL SR/BSR needs to be triggered when there is no SL grant in SL DRX active time for the destination which has SL data available for transmission. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 1: Sensing procedure is designed from a Tx UE’s perspective (as in legacy) even when a DRX configuration is in use.  | Moderator understand it is more of R1 scope on how to design sensing operation. |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 2: Sensing does not affect the current MAC timers for DRX i.e. SL-on-duration timer start should be according to DRX cycle configuration agreed among the peer device(s) | Moderator understand it is more of R1 scope on how to design sensing operation. |
| R2-2200483 | HW | Proposal 20: RAN2 to confirm that SL-DRX can be reused for L2 relay-related ProSe discovery without additional specification effort. |  |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 1: UE does not (re)start Uu inactivity timer when receive a new SL scheduling for broadcast transmission. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200786 | Nokia, Nokia Shanghai Bell | Proposal 1: RAN2 to support SL sync search optimization for power saving at SL DRX UEs.Proposal 2: A UE may perform full SL sync search only when the current SyncRef UE is potentially no longer suitable or when there may potentially be a significantly more suitable SyncRef UE in the vicinity.Proposal 3: PSBCH message conveys an indication to perform reselection of synchronization reference with full SL sync search.Proposal 4: RAN2 to consider PSCCH/PSSCH transmissions for conveying SL sync related information such as SLSS ID and InCoverage indicator.Proposal 5: RAN2 to consider a group specific SyncRef UE for SL DRX UE group. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200790 | Xiaomi | Proposal 5: TX UE indicate dropped grant to gNB by HARQ process ID included in the DCI, which scheduled dropped SL grant. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200791 | Xiaomi | Proposal 10: RAN2 to specify TX UE’s behaviour regarding sidelink DRX maintenance, i.e. TX UE shall maintain DRX timer running associate with RX UE to determine RX UE’s active time. | Moderator suggest to rely on MAC running-CR discussion for the detailed discussion. |
| R2-2200894 | vivo | Proposal 1: LCP enhancements for ensuring a TX UE transmits data in the active time of an RX UE are not applied when the DRX is not operated on related Destination(s). | Moderator share the view yet understand the current agreement was made for DRX case so aligned with the intention, suggest to discuss the details in running-CR discussion. |
| R2-2201061 | ZTE Corporation, Sanechips | Proposal4: There is no need to consider the case that no SL slots are available in UE’s active time. |  |
| R2-2201458 | Nokia, Nokia Shanghai Bell | Proposal 1: RAN2 to discuss whether/how to allow for lower priority logical channels to be used for the selection of destination.Proposal 2: The decision on whether to prioritise a lower priority logical channel can be based on QoS parameters, remaining active time, or whether more resources are provided in the sidelink grant. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2201152 | InterDigital | Proposal 8: RAN2 concludes that DRX for L2 SL Relay is not addressed in Rel17 since the non-relay case was prioritized in Rel17. |  |
| R2-2201624 | Qualcomm Finland RFFE Oy | Proposal 2: Random selection may be used for resource selection triggered by an SL CSI report when there is no resource candidate in a dedicated resource pool selected for SL CSI report. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2201135 | Apple | Proposal 13 Uu/SL DRX alignment shall be on a best-effort basis and shall not sacrifice Uu radio performance. |  |
| R2-2200483 | HW | Proposal 5: For SL groupcast, initial transmission is only allowed during the time when onduration timer or inactivity timer is running, and retransmission of a SL process is only allowed during the time when onduration timer, inactivity timer, or the retransmission timer of this SL process is running. | Considering it has been discussed at 116, moderator suggest not to prioritize this issue For GC: - Option1: Initial transmission is allowed during the time when on-duration and inactivity timer run. - Option2: Initial transmission is allowed during any active time. Option 1: Qualcomm, Lenovo, IDT, Huawei, Ericsson (5)Option 2: LG, OPPO, Nokia, Intel, Apple, MediaTek, NEC, ZTE, Fraunhofer, ASUSTek (10) |
| R2-2200483 | HW | Proposal 3: RAN2 to discuss the following two methods to avoid the packet loss in RX UE caused by SL HARQ feedback disabled:- Option 1: When, in mode 1, the RX UE receives the indication that the TX UE will request retransmission resource for a HARQ feedback disabled SL process, or when, in mode 2, RX UE receives a SCI indicating both HARQ feedback disabled and the subsequent blind retransmission resource(s), RX UE starts the corresponding retransmission timer in SL DRX upon HARQ RTT timer expiry regardless of whether or not the data is decoded successfully.- Option 2: If RX UE receives a SCI indicating HARQ feedback disabled, RX UE starts retransmission timer in SL DRX upon HARQ RTT timer expiry regardless of whether or not the data is decoded successfully. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200264 | ZTE Corporation, Sanechips | Proposal 2 Differentiating sidelink resource pool for SL DRX-capable UE and SL DRX-incapable UE should be considered.  | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200344 | NEC Corporation | Proposal 3 When TX UE doesn’t receive drx-inactivity timer / HARQ RTT timer/ HARQ retransmission timer from assistance information, TX UE considers that RX UE is ok with any drx-inactivity timer / HARQ RTT timer/ HARQ retransmission timer. | Moderator understand this is straightforward if they are not included in the assistance information. |
| R2-2200483 | HW | Proposal 1: Apart from desired SL DRX configuration, the SL DRX assistance information can also include the Uu DRX configuration of RX UE, configured SL DRX configurations for other SL connections of the RX UE, the SL DRX configurations configured for its RX UE(s), and the power saving requirement of the RX UE. | Considering the related proposal has been discussed in Post-115 [716] Q5.1-1, where only minority support option-3/4, moderator think no need to prioritize the issues for now. |
| R2-2200264 | ZTE Corporation, Sanechips | Proposal 6 All the current SL DRX configuration of the other PC5-S connections can be included in the assistance information. | Considering the related proposal has been discussed in Post-115 [716] Q5.1-1, where only minority support option-3/4, moderator think no need to prioritize the issues for now. |
| R2-2200318 | CATT | Proposal 15: The DRX timers, at least including on-duration timer, need to be extended if the logic SL slot is not sufficient in the active time calculated by physical slot. | Moderator suggest not to prioritize this issue given there are negative voice on this direction, + there are left issues on whether / how to define the threshold, and how to handle the case that the delayed subframe entering into the next cycle |
| R2-2200483 | HW | Proposal 6: When the SL DRX timers are calculated in the unit of physical slot, the following solutions can be considered to overcome the SL service transmission performance degradation problem:- Option 1: allow to extend the SL DRX timer when the number of “available slots” in the original running time is smaller than a threshold or the number of “unavailable slots” in the original running time is larger than a threshold.- Option 2: if the start time of onduration/inactivity/retransmission timer does not lie within available slot, delay the start time to the nearest available slot. | Moderator suggest not to prioritize this issue given there are negative voice on this direction, + there are left issues on whether / how to define the threshold, and how to handle the case that the delayed subframe entering into the next cycle |
| R2-2201585 | Samsung Research America | [Proposal 3]: For GC/BC, SL-QoS-Profile-r16 is reused to map between SL DRX cycle length and QoS profile.  | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2201585 | Samsung Research America | [Proposal 4]: For GC/BC, index indicating the order of SL-QoS-Profile in Rel-16 can be used. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200319 | CATT | Proposal 5: For GC with DRX configuration, Tx UE will transmit the initial transmission at any active time (including the time for on duration timer, inactivity timer and retransmission timer). | Considering it has been discussed at 116, moderator suggest not to prioritize this issue For GC: - Option1: Initial transmission is allowed during the time when on-duration and inactivity timer run. - Option2: Initial transmission is allowed during any active time. Option 1: Qualcomm, Lenovo, IDT, Huawei, Ericsson (5)Option 2: LG, OPPO, Nokia, Intel, Apple, MediaTek, NEC, ZTE, Fraunhofer, ASUSTek (10) |
| R2-2200415 | Lenovo, Motorola Mobility | Proposal 11: Solutions to avoid resource congestion, half duplex issue at the beginning of active time need to be discussed. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2201523 | Lenovo, Motorola Mobility | Proposal 3: Solutions to avoid resource congestion, half duplex issue at the beginning of active time need to be discussed. | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200373 | OPPO | Proposal 17 RAN2 discuss how for network to perform mode-1 scheduling for SL GC considering inactivity timer for transmission (i.e., inactivity timer for UE-A => UE-B direction) can be (re)started upon reception of new data with the same destination ID (i.e., due to new data of UE-B => UE-A direction). | Since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200762 | Lenovo, Motorola Mobility | Proposal 3: RAN2 to discuss how to ensure that Rx UE doesn’t start the sl-drxInactivityTimer for SL CG allocations and mode 2 multi-shot transmission.  | Since just a single paper on this direction, suggest not to prioritize for now |
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| R2-2200483 | HW | Proposal 15: In Rel-17, TX profile is used to identify being SL DRX compatible or incompatible. | Moderator understand this is already concluded in last RAN2 meeting. |
| R2-2200483 | HW | Proposal 16: RAN2 to confirm TX profile to be provided with L2 ID. | Moderator suggest to deprioritize the issues already captured in SA2 spec |
| R2-2200483 | HW | Proposal 17: TX profile mechanism can be reused directly for DCR message. | Moderator share the view, yet understand the existing agreement already align with the intention. |
| R2-2200938 | Ericsson | Proposal 33 RAN2 to adopt a new term e.g., “communication profile” to replace the term “TX profile”. | Moderator suggest to deprioritize the terminology issue |
| R2-2200938 | Ericsson | Proposal 20 For groupcast, the TX UE can only select the resources for the initial transmission associated with the time in which the on-duration timer at the TX UE is running. | Considering it has been discussed at 116, moderator suggest not to prioritize this issue For GC: - Option1: Initial transmission is allowed during the time when on-duration and inactivity timer run. - Option2: Initial transmission is allowed during any active time. Option 1: Qualcomm, Lenovo, IDT, Huawei, Ericsson (5)Option 2: LG, OPPO, Nokia, Intel, Apple, MediaTek, NEC, ZTE, Fraunhofer, ASUSTek (10) |
| R2-2200894 | vivo | Proposal 2: RAN2 to discuss the timing when MAC layer should indicate active time to PHY layer, e.g. :- When DRX configuration is changed- When resource (re)selection is triggered- When current active time is changed | Moderator understand the 2nd one is aligned with the agreement so far, while for the first and third one, since just a single paper on this direction, suggest not to prioritize for now |
| R2-2200894 | vivo | Proposal 3: MAC layer indicates the ratio threshold that needs to be satisfied for candidate resources provided by PHY to be within indicated active time, to ensure there are enough resources applicable for MAC layer to select. | Moderator understand it is more of R1 scope to discuss. |
| R2-2200483 | HW | Proposal 13: The default SL BC/GC DRX configuration should always be configured by NW. | Moderator understand this can be discussed in RRC Running CR |
| R2-2200938 | Ericsson | Proposal 36 Upon arrival of a new service whose TX profile doesn’t allow SL DRX to be applied, UE may inform this to its neighbour UEs which have unicast connections to the UE and the gNB if the UE is in RRC CONNECTED. | Since this is the single paper proposing this, moderator suggest not to prioritize it for now. |
| R2-2200791 | Xiaomi | Proposal 11: If RX UE is not able to monitor SL in the rest time of on-duration or inactivity timer running, e.g. due to UL/SL transmission or lack of reception resource, RX UE sends indication to TX UE. TX UE stop DRX timers associated with RX UE. | Since this is the single paper proposing this, moderator suggest not to prioritize it for now. |

# Conclusions

The contributions submitted to AI 8.15.2 are summarized above, with moderator comments. Moderator recommendations are as follows.

#  Reference

1. R2-2200007 Summary of [POST116-e][718][V2X SL] SL DRX configuration (Ericsson) Ericsson discussion
2. R2-2200045 Summary of [POST116-e][715][V2X/SL] RRC open issues Huawei, HiSilicon (Rapporteur) discussion
3. R2-2200051 Summary of [POST116-e][716][SL] MAC open issues LG Electronics Inc. (Rapporteur) discussion
4. R2-2200264 Discussion on remaining issues of SL DRX ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core
5. R2-2200318 Leftover Issues for Sidelink Unicast DRX CATT discussion Rel-17 NR\_SL\_enh-Core
6. R2-2200319 Leftover issues for Sidelink GCBC DRX CATT discussion Rel-17 NR\_SL\_enh-Core
7. R2-2200344 Further discussions on leftover issues of sidelink DRX configuration NEC Corporation discussion
8. R2-2200345 Further discussions on sidelink MAC open issues NEC Corporation discussion
9. R2-2200373 Discussion on DRX left issues OPPO discussion Rel-17 NR\_SL\_enh-Core
10. R2-2200374 Discussion on DRX left issues from [716] [718] OPPO discussion Rel-17 NR\_SL\_enh-Core
11. R2-2200415 SL DRX CP aspects Lenovo, Motorola Mobility discussion NR\_SL\_enh-Core Revised
12. R2-2200483 Remaining issues for sidelink DRX Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core
13. R2-2200484 Remaining issues of SL communication impact on Uu DRX Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core
14. R2-2200528 Leftover aspects on SL DRX Intel Corporation discussion Rel-17 NR\_SL\_enh-Core
15. R2-2200530 On SL DRX and candidate resource selection Intel Corporation discussion Rel-17 NR\_SL\_enh-Core
16. R2-2200535 Discussion on remaining issues for SL DRX LG Electronics France discussion Rel-17 NR\_SL\_enh-Core
17. R2-2200536 Consideration on sidelink DRX for unicast LG Electronics France discussion Rel-17 NR\_SL\_enh-Core Withdrawn
18. R2-2200544 Consideration on sidelink DRX for unicast LG Electronics France discussion Rel-17
19. R2-2200545 Discussion on resource (re-)selection in SL DRX SHARP Corporation discussion NR\_SL\_enh-Core
20. R2-2200749 Discussion on remaining issues regarding Sidelink DRX ASUSTeK discussion Rel-17 NR\_SL\_enh-Core
21. R2-2200762 Remaining MAC issues for SL DRX Lenovo, Motorola Mobility discussion Rel-17
22. R2-2200786 NR Sidelink Synchronization Reference Search Optimization at UE for Power Saving Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh-Core
23. R2-2200790 Discussion on Uu impact Xiaomi discussion
24. R2-2200791 Discussion on Sidelink DRX open issues Xiaomi discussion
25. R2-2200893 RRC remaining issues on SL DRX vivo discussion Rel-17
26. R2-2200894 MAC remaining issues on SL DRX vivo discussion Rel-17
27. R2-2200938 Remaining aspects of SL DRX Ericsson discussion Rel-17 NR\_SL\_enh-Core
28. R2-2201061 Discussion on remaining issues of SL DRX timers ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core
29. R2-2201135 Discussion on remaining issues on SL-DRX Apple discussion Rel-17 NR\_SL\_enh-Core
30. R2-2201150 Resource Selection Considering DRX InterDigital discussion Rel-17 NR\_SL\_enh-Core
31. R2-2201151 Consideration of the Active Time for Periodic Transmissions InterDigital, Ericsson, ZTE, AsusTek, Huawei, HiSilicon, Lenovo, Motorola Mobility, Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_enh-Core
32. Revised in R2-2201635
33. R2-2201635 Consideration of the Active Time for Periodic Transmissions InterDigital, Ericsson, ZTE, AsusTek, Huawei, HiSilicon, Lenovo, Motorola Mobility, Nokia, Nokia Shanghai Bell, Samsung discussion Rel-17 NR\_SL\_enh-Core
34. R2-2201152 Remaining Aspects on SL DRX InterDigital discussion Rel-17 NR\_SL\_enh-Core
35. R2-2201458 SL data transmission considering SL DRX active time Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh-Core R2-2110747
36. R2-2201478 Resource selection considering SL DRX ITL discussion
37. R2-2201523 SL DRX CP aspects Lenovo, Motorola Mobility discussion NR\_SL\_enh-Core R2-2200415
38. R2-2201582 UE report on SL DRX for Uu DRX alignment Samsung Research America discussion
39. R2-2201585 Remaining details for GC/BC Samsung Research America discussion
40. R2-2201624 Discussion on Remaining Design Aspects for SL DRX Qualcomm Finland RFFE Oy discussion