3GPP TSG-RAN WG2 Meeting #115 electronic R2-21xxxxx
Online, August 16th – 27th, 2021

Agenda Item: 10.8

Source: Session Chair (Samsung)

Title: Report from session on LTE V2X and NR SL

Document for: Approval

Time Schedule
Please refer to the latest schedule in the RAN2 inbox on the public 3GPP servers.

## 4.3 V2X and Sidelink corrections Rel-15 and earlier

Documents in this agenda item will be handled in a break out session.

## 6.2 NR V2X

(5G\_V2X\_NRSL-Core; leading WG: RAN1; REL-16; started: Mar 19; target; Aug 20; WID: RP-200129).

Documents in this agenda item will be handled in a break out session

Tdoc Limitation: 5 tdocs. See also tdoc limitation for Agenda Item 6

CR rapporteurs will take care of miscellaneous CRs to collect small changes. Please contact / coordinate with CR rapporteur company first for small changes (e.g. non-controversial clarification/correction, editorial correction, etc.).

### 6.2.1 General and Stage-2 corrections

Including incoming LSs, rapporteur inputs, etc.

R2-2106912 LS on RRC parameter for PSFCH RB set (R1-2106192; contact: LGE) RAN1 LS in Rel-16 5G\_V2X\_NRSL-Core To:RAN2

* Noted.

### 6.2.2 Control plane corrections

This agenda item may utilize a summary document on RRC (Huawei).

R2-2109024 Review report on RRC CRs Huawei, HiSilicon discussion 5G\_V2X\_NRSL-Core

Recommendation 1: Discuss the CRs in R2-2107166, R2-2107167, R2-2107437, R2-2108178, and R2-2108219 in an offline discussion, the agreed changes are merged into Rapporteur’s miscellaneous correction CR(s).

[Session chair]: For R2-2108219, which specification (RRC or PDCP) is more appropriate for this correction? [Huawei]: Can be discussed as part of offline discussion [AT115-e][705].

* [AT115-e][705][V2X/SL] Miscellaneous CRs on RRC (Huawei)

 **Scope:** Discuss CRs in R2-2107166, R2-2107167, R2-2107437, R2-2108178, and R2-2108219 in an offline discussion, and if agreeable merge them into rapporteur’s miscellaneous CRs.

 **Intended outcome:** Agreeable 38.331 CR in R2-2108985 and 36.331 CR in R2-2108986, and discussion summary in R2-2108987 if needed. Agreeable 38.323 CR in R2-2108988 if PDCP correction is needed. Will be approved by email.

 **Deadline:** 8/24 13:00pm UTC => Extended to 8/27 10:00am UTC

Recommendation 2: Discuss the contributions/CRs in R2-2107012, R2-2108218, and R2-2108741 separately, maybe online first.

R2-2107166 Miscelleneous CR on 38.331 Huawei, HiSilicon CR Rel-16 38.331 16.5.0 2715 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][705].

R2-2107167 Miscelleneous CR on 36.331 Huawei, HiSilicon CR Rel-16 36.331 16.5.0 4690 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][705].

R2-2107437 Correction on TS 38.331 from the latest RAN1 decisions ZTE Corporation, Sanechips CR Rel-16 38.331 16.5.0 2726 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][705].

R2-2108178 Corrections on RRC parameter PSFCH RB set CATT CR Rel-16 38.331 16.5.0 2755 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][705].

R2-2108219 CR on SL-SRB1 integrity check failure vivo, Ericsson CR Rel-16 38.331 16.5.0 2759 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][705].

R2-2107012 Corrections to usage of dynamic SL grants when T310 is running Samsung Electronics Co., Ltd CR Rel-16 38.331 16.5.0 2710 - F 5G\_V2X\_NRSL-Core

* Not pursued.

[OPPO, ZTE, Apple, Ericsson, Intel]: Agree with the CR rapporteur view “It is questionable that it shall be specified UE does not monitor PDCCH for sidelink grant while T310 is running. Monitoring PDCCH is a common Uu behaviour regardless of the grant type (sidelink grant or Uu grant) and there seems no Uu specification on UE not monitoring PDCCH while T310 is running. Further, “UE does not use dynamic sidelink grants” is not equivalent to “UE does not monitor PDCCH for sidelink grant”, strictly speaking.” [ZTE, Apple]: It is up to UE implementation. It is not prohibited. [Samsung]: Mode1 is not used while T310 runs. [OPPO]: Monitoring PDCCH is not affected from T310 running. [Ericsson]: To the current RRC specification, there is no restriction on monitoring PDCCH.

R2-2108218 Discussion on SL PDCP out-of-order delivery configuration vivo discussion

R2-2108741 Correction on SL PDCP out-of-order delivery configuration vivo CR Rel-16 38.331 16.5.0 2797 - F 5G\_V2X\_NRSL-Core

[CATT, OPPO, Ericsson, Apple]: Issue is not valid since RX UE capability is known via PC-5 UE capability signalling. [OPPO]: For APP/service aspect, we already discussed when the decision was made. [Vivo]: If we rely on the network configuration, how network knows RX UE’s capability? In SL communication, UE just report QoS profile information and gNB cannot get the related information from core network. [Ericsson]: Doesn’t TX UE report peer RX UE’s capability information? Still capturing this restriction is not preferred. [Vivo]: It is related to upper layer protocol, which is not indicated by peer RX UE’s AS capability.

* [AT115-e][706][V2X/SL] SL PDCP out-of-order delivery configuration (Vivo)

 **Scope:** Discuss R2-2108218 and R2-2108741, and decide whether anything is needed. If the issue is valid and the solution is needed, decide the solution and prepare the correction.

 **Intended outcome:** Discussion summary in R2-2108990 and agreeable 38.331 CR in R2-2108989 if needed. Will be approved by email.

 **Deadline:** 8/24 13:00pm UTC

R2-2108990 Summary of [AT115-e][706][V2XSL] SL PDCP out-of-order delivery configuration Vivo discussion 5G\_V2X\_NRSL-Core

* RAN2 confirms the common understanding that for SL unicast the TX UE’s gNB/pre-configuration ensures the configuration of sl-PDCP-OutOfOrderDelivery to be compatible with RX UE’s capability by NW implementation (w/o Spec impact):
* Not configure the sl-PDCP-OutOfOrderDelievery as present in SIB/Pre-configuration;
* Configure the sl-PDCP-OutOfOrderDelievery flag compatible with related AS/upper-layer capability for any SL-DRB configuration in dedicated signaling.

### 6.2.3 User plane corrections

This agenda item may utilize a summary document on MAC (LG).

R2-2108161 Review Report on MAC CRs LG Electronics Inc. discussion Rel-16 5G\_V2X\_NRSL-Core Late

Recommendation 1 The CRs in R2-2107436, R2-2108177 can be agreed.

Recommendation 2: Discuss R2-2107168, R2-2107188, R2-2107302, and R2-2108220 during on-line sessions.

Recommendation 3: The CRs in R2-2107185, R2-2107186, R2-2107187, and R2-2108707 are not pursued.

R2-2107436 Correction on HARQ reporting on Uu ZTE Corporation, Sanechips CR Rel-16 38.321 16.5.0 1128 - F 5G\_V2X\_NRSL-Core

* Noted.

[Qualcomm]: It is physical procedure so it seems not essential correction. [Huawei, Ericsson]: Agree with Qualcomm. PUSCH multiplexing with UCI is transparent to MAC. [Apple]: Support the CR. [OPPO, CATT]: Intention is correct and support the CR. [Huawei]: In the first place, it is specified “the MAC entity shall for a PUCCH transmission occasion”. Then shouldn’t it be enough? Adding “PUSCH” seems not suitable in the corresponding part in MAC.

R2-2108177 Corrections on MCS selection when UE performing TX resource (re-)selection check CATT CR Rel-16 38.321 16.5.0 1139 - F 5G\_V2X\_NRSL-Core

* Agreed.

R2-2107168 Corrections on the dynamic sidelink grants Huawei, HiSilicon CR Rel-16 38.321 16.5.0 1123 - F 5G\_V2X\_NRSL-Core

[Ericsson]: First change is not needed. It is clear enough. [OPPO, Lenovo, Apple]: First change is ok, but for the second change, have concern on the restriction although understand the intention.

* [AT115-e][707][V2X/SL] Corrections on the dynamic sidelink grants (Huawei)

 **Scope:** Discuss R2-2107168 (including the need of CR) and prepare the CR if needed.

 **Intended outcome:** Agreeable MAC CR in R2-2108991. Summary discussion in R2-2108992 if needed. Will be approved by email.

 **Deadline:** 8/24 13:00pm UTC => Extended to 8/27 10:00am UTC

R2-2107188 Correction on random selection OPPO CR Rel-16 38.321 16.5.0 1126 - F 5G\_V2X\_NRSL-Core

* “resourcespool” should be changed into “resource pool”
* Agreed in R2-2108993 with the change above

[LG]: In LTE MAC, there is no corresponding parts as proposed in this CR. [OPPO, Lenovo]: In LTE, random selection is specified in physical specification from Rel-15. In NR, there is no corresponding description in the physical specification. [Qualcomm, Huawei, Apple, Vivo]: We need to restrict this random selection procedure into exceptional TX resource pool only. Current correction seems general which can be also applied to normal TX resource pool. [OPPO]: It is Rel-16 CR so it is clear it is only applied to exceptional TX resource pool. [Session chair]: Can RAN1 resolve the issue as LTE? [OPPO]: This can be alternative option, but it may not be realistic option based on RAN1 status. [ZTE]: Support the proposal.

R2-2107302 Correction on condition of setting the resource reservation interval for mode 2 Sharp, ZTE Corporation, Sanechips, OPPO CR Rel-16 38.321 16.5.0 1127 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][709].

R2-2108220 Correction on SR procedure for SL-CSI reporting vivo, ZTE corporation CR Rel-16 38.321 16.5.0 1140 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][709].

R2-2107185 Correction on UL-SL prioritization OPPO, Apple CR Rel-16 38.321 16.5.0 1124 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][709].

R2-2107186 Correction on UL-SL prioritization OPPO, Apple CR Rel-16 36.321 16.5.0 1526 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][709].

R2-2107187 Correct on priority of MAC PDU for SL-SCH OPPO CR Rel-16 38.321 16.5.0 1125 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][709].

R2-2108707 Corrections for SR configuration for SL ASUSTeK CR Rel-16 38.321 16.5.0 1154 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT115-e][709].
* [AT115-e][709][V2X/SL] MAC discussion on remaining issues (LG)

 **Scope:** Discuss all remaining CRs in R2-2107302, R2-2108220, R2-2107185, R2-2107185, R2-2107186, R2-2107187, R2-2108707, R2-2107189 and R2-2108221.

 **Intended outcome:** Discussion summary in R2-2108994 and agreeable MAC CR in R2-2108996 if needed. Will be approved by email. => Proposals in R2-2107189 and R2-2108221 will be treated in CB session (8/26).

 **Deadline:** 8/24 13:00pm UTC => Extended to 8/27 10:00am UTC

R2-2107189 Left issue on maxTransNum OPPO discussion Rel-16 5G\_V2X\_NRSL-Core

Proposal 1 RAN2 confirm the WA that “UE assumes that next retransmission(s) of the MAC PDU is required when FB is disabled, for CG, if sl-CG-MaxTransNumList is configured with a value not larger than the number of CG resources, when sl-CG-MaxTransNum is not reached”.

* Wait until next meeting. If no response until next meeting, RAN2 confirms the WA.

[OPPO]: Majority companies supported working assumption although there was no consensus in RAN1. [LG, Nokia]: Different view than OPPO. [Session chair]: Check the companies understanding:

* Confirm working assumption: OPPO, Ericsson, Apple, Vivo, InterDigital, Intel, Lenvo, MediaTek, Qualcomm, Huawei (10)
* Do not confirm working assumption: LG, Nokia, ZTE, CATT (4)

[Session chair]: In the LS, we ask RAN1 to feedback if any concern. No feedback/response can be interpreted no concern. However, would like to suggest to wait until next meeting. If no response until next meeting, RAN2 confirms the WA.

Proposal 2 When FB is disabled, for CG, if sl-CG-MaxTransNumList is configured with a value larger than the number of CG resources, when sl-CG-MaxTransNum is reached, UE assumes that next retransmission(s) of the MAC PDU is not required.

* Postponed to the next meeting.

[Vivo]: sl-CG-MaxTransNumList only covers CG resources then how sl-CG-MaxTransNum can be reached? [Session chair]: Share the view but details will be discussed next meeting.

Proposal 3 When FB is disabled, for CG, if sl-CG-MaxTransNumList is configured with a value larger than the number of CG resources, when sl-CG-MaxTransNum is not reached, UE assumes that next retransmission(s) of the MAC PDU is required.

* Postponed to the next meeting.

R2-2108221 Remaining issues on sl-MaxTransNum configuration and UE behaviour vivo discussion

Proposal 1: Besides the WA, RAN2 to clarify that the UE will decide whether the next retransmission(s) of the MAC PDU is required based on implementation when SL HARQ FB is disabled and when sl-MaxTransNum is not reached, in case that sl-CG-MaxTransNumList is configured with a value larger than the number of CG resources.

* Postponed to the next meeting.

## 8.15 NR Sidelink enhancements

(NR\_SL\_enh-Core; leading WG: RAN1; REL-17; WID: RP-202846)

Time budget: 1.5 TU

Tdoc Limitation: 4 tdocs

Email max expectation: 6 threads

The LS from SA2 in R2-2106967 (S2-2104932) that addresses a mix of sidelink relay and sidelink enhancement topics will initially be handled under the NR SL relay AI.

### 8.15.1 Organizational

Including incoming LSs, rapporteur inputs, etc.

**Discussion on CR rapporteurs**

* Agreed with the following CR rapporteurs:

RRC: Huawei

 MAC: LG

 RLC: Xiaomi

 PDCP: CATT

 SDAP: Vivo

 38.304: ZTE

 38.306: OPPO

 38.300: InterDigital

R2-2108496 Stage 2 Running CR of TS 38.300 for eSL InterDigital France R&D, SAS discussion Rel-17 Late

* To be handled in offline discussion [AT115-e][701]
* [AT115-e][701][V2X/SL] 38.300 running CR (InterDigital)

 **Scope:** Capture agreements into 38.300 running CR

 **Intended outcome:** Endorse 38.300 running CR in R2-2108981. Will be approved by email.

 **Deadline:** 8/24, 10:00am UTC

R2-2108981 Stage 2 Running CR of TS 38.300 for eSL InterDigital France R&D, SAS draftCR Rel-17 38.300 16.6.0 B NR\_SL\_enh-Core

* Endorsed.

### 8.15.2 SL DRX

Including [Post114-e][704], [Post114-e][705], and [Post114-e][706].

R2-2107303 Summary of [POST114-e][704][V2X/SL] How to make sure Rel-16 UEs not supporting SL DRX are not involved in SL communication in DRX manner (Sharp) SHARP Corporation discussion NR\_SL\_enh-Core Late

Proposal 1: For GC/BC, TX profile is introduced in Rel-17 for sidelink enhancement. FFS whether a TX profile identifies a Release, or one or more sidelink feature groups.

* Agreed.

[Ericsson]: It will be good to apply TX profiles to all cast types in common. [ZTE, CATT, LG, Xiaomi, OPPO]: Based on the discussion, proposal 1 should be only applied to GC/BC now. For UC, it is handled by PC5-RRC UE capability signalling. [OPPO]: However how to handle DCR message needs to be considered further.

Proposal 2a: A service type can be mapped to a TX profile, i.e. V2X and ProSe.

* RAN2 understand a service type can be mapped to a TX profile, i.e. V2X and ProSe.

[Vivo, Apple, CATT]: From RAN2 point of view, we can just agree with the first sentence.

Proposal 2b: A TX profile is indicated from upper layer to AS layer. FFS whether a TX profile needs to be provided with service type information or L2 id.

* Agreed.

[Session chair]: Is service type visible from AS point of view? [InterDigital, Lenovo, Huawei]: Agree with session chair, From AS point of view, TX profile with the L2 destination id corresponding to the service type is provided by the upper layer. [OPPO]: In LTE, service type information is directly provided by the upper layer for each data unit. [Ericsson]: Upper layer can also make sure TX profile is always provided to AS so it is early to make a decision on default TX profile.

Proposal 3: Multiple TX profiles can be preconfigured.

* Noted.

[Qualcomm]: Very difficult to agree with the proposal 3 now. Also first we should understand whether TX profile is based on release or group of features. [ZTE]: Proposal is not crystal clear. Are multiple TX profiles for a given service type or a given UE? [Session chair]: If we allow multiple TX profiles for a given service type, it means some UEs within the same group can support SL DRX while some other UEs within the same group cannot support it. It sounds complicated to resolve it.

Proposal 5: It is supported that some TX profile(s) correspond to support of SL DRX, and other TX profile(s) correspond to no support of SL DRX.

* Noted.

[Apple, LG]: Propose to skip the proposal 5 since it is related to proposal 3 and not clear now.

Proposal 8: For GC/BC, a Rel-17 TX UE shall only assume SL DRX for the RX UEs when the associated TX profile corresponding to support of SL DRX. FFS whether a TX profile needs to be provided with service type information or L2 id.

* Agreed.

Proposal 9: For UC, for SL transmissions after PC5-RRC connection is established, no backward compatibility issue of SL DRX is assumed, i.e. backward compatibility is handled based on PC5-RRC UE capability signalling.

* Agreed.

[Lenovo]: “PC5-RRC link is established” is not crystal clear in terms of exactly when. [Vivo]: “PC5-RRC link is established” should be ok since we already use that term.

Proposal 11a: Send an LS to SA2 to inform them of the RAN2 agreements related to TX profile.

* Agreed.

[Ericsson, CATT]: We need to make more progress before sending LS to SA2. [OPPO, Qualcomm, Intel]: LS to SA2 is needed and urgent. We can indicate for the remaining issues, RAN2 is still discussing them. [Xiaomi]: RX UE behaviour to TX profile should be included in the LS.

* [AT115-e][708][V2X/SL] LS to SA2 (OPPO)

 **Scope:** Inform SA2 of RAN2 decisions on pre-configuration and TX profiles, ask if SA2 has any concern and if not, ask SA2 to take into account for their works.

 **Intended outcome:** Approve the LS in R2-2108995. Will be approved by email.

 **Deadline:** 8/26, 10:00am UTC

Proposal 7a: 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.

* Agreed.

[Ericsson]: Option2 is suitable when the RX UE has interests in multiple services with different TX profiles (one is with SL DRX support the other one is without SL DRX support) [Xiaomi]: DRX operation is per destination L2 id, which is more aligned with option1. [OPPO]: Do we need to consider SL relay discovery aspect also? [Ericsson, Qualcomm, LG, Nokia, Xiaomi]: SL relay discovery is ongoing Rel-17 issue and it should not be considered now. We normally do not consider ongoing other features in the same release.

Agreements on TX profiles:

1: For GC/BC, TX profile is introduced in Rel-17 for sidelink enhancement. FFS whether a TX profile identifies a Release, or one or more sidelink feature groups.

2: RAN2 understand a service type can be mapped to a TX profile, i.e. V2X and ProSe.

3: A TX profile is indicated from upper layer to AS layer. FFS whether a TX profile needs to be provided with service type information or L2 id.

4: For GC/BC, a Rel-17 TX UE shall only assume SL DRX for the RX UEs when the associated TX profile corresponding to support of SL DRX. FFS whether a TX profile needs to be provided with service type information or L2 id.

5: 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.

6: For UC, for SL transmissions after PC5-RRC connection is established, no backward compatibility issue of SL DRX is assumed, i.e. backward compatibility is handled based on PC5-RRC UE capability signalling.

7: Send an LS to SA2 to inform them of the RAN2 agreements related to TX profile.

R2-2107159 Summary of [POST114-e][705][V2XSL] Discussion on remaining FFSs and open issues in Uu DRX timer Huawei, HiSilicon discussion

Proposal 1: When sl-PUCCH-Config is configured but the PUCCH is not transmitted due to UL/SL prioritization, the TX UE should start the SL-specific drx-HARQ-RTT-Timer in Uu for the corresponding SL HARQ process in the first slot/symbol after the end of the corresponding PUCCH resource. FFS on slot or symbol.

* Agreed.

[LG, Lenovo]: We need to further consider whether HARQ retransmission is started or not dependent on ACK or NACK over PUCCH. [Huawei]: HARQ retransmission issue was not fully discussed during the email discussion.

Proposal 2: When sl-PUCCH-Config is not configured, the SL-specific drx-HARQ-RTT-Timer should not be supported.

* Noted. Further discussion is needed.

[LG]: Do not agree with proposal 2. It has dependency on whether PSFCH is configured or not. [Qualcomm]: “When sl-PUCCH-Config is not configured” is not clear whether it means the blind retransmissions or no feedback is required (one-shot retransmission). [Lenova]: Supports the proposal [Apple, InterDigital, Ericsson]: Do not agree with the proposal.

Proposal 3: When sl-PUCCH-Config is not configured, the SL-specific drx-RetransmissionTimer should be supported.

* Agreed.

[CATT, ZTE]: Without PUCCH, does the gNB send a DCI for more retransmissions? [Huawei, Ericsson, InterDigital, Lenovo, OPPO]: It is up to gNB implementation. [Qualcomm]: Although up to two resources for retransmissions can be included into single DCI/SCI, for blind retransmissions, more resources can still be allocated by the following DCI/SCI by the gNB.

Proposal 4: If RAN2 agrees not to support SL-specific drx-HARQ-RTT-Timer but to support SL-specific drx-RetransmissionTimer when sl-PUCCH-Config is not configured, when sl-PSFCH-Config is configured, the SL-specific drx-RetransmissionTimer is started at the first symbol after the end of last PSSCH resource scheduled through one DCI. FFS the SL-specific drx-RetransmissionTimer is started at the first slot after the end of last PSSCH resource scheduled through one DCI instead.

* Agreed.

Proposal 5: If RAN2 agrees not to support SL-specific drx-HARQ-RTT-Timer but to support SL-specific drx-RetransmissionTimer when sl-PUCCH-Config is not configured, when sl-PSFCH-Config is not configured, the SL-specific drx-RetransmissionTimer is started at the first symbol after the end of last PSSCH resource scheduled through one DCI. FFS the SL-specific drx-RetransmissionTimer is started at the first slot after the end of last PSSCH resource scheduled through one DCI instead.

* Agreed.

Agreements on Uu DRX timer impacts:

1: When sl-PUCCH-Config is configured but the PUCCH is not transmitted due to UL/SL prioritization, the TX UE should start the SL-specific drx-HARQ-RTT-Timer in Uu for the corresponding SL HARQ process in the first slot/symbol after the end of the corresponding PUCCH resource. FFS on slot or symbol.

2: When sl-PUCCH-Config is not configured, the SL-specific drx-RetransmissionTimer should be supported.

3: SL-specific drx-RetransmissionTimer is started at the first symbol after the end of last PSSCH resource scheduled through one DCI (with the assumption RAN2 agrees not to support SL-specific drx-HARQ-RTT-Timer but to support SL-specific drx-RetransmissionTimer when sl-PUCCH-Config is not configured, when sl-PSFCH-Config is configured). FFS the SL-specific drx-RetransmissionTimer is started at the first slot after the end of last PSSCH resource scheduled through one DCI instead.

4: SL-specific drx-RetransmissionTimer is started at the first symbol after the end of last PSSCH resource scheduled through one DCI (with the assumption RAN2 agrees not to support SL-specific drx-HARQ-RTT-Timer but to support SL-specific drx-RetransmissionTimer when sl-PUCCH-Config is not configured, when sl-PSFCH-Config is not configured). FFS the SL-specific drx-RetransmissionTimer is started at the first slot after the end of last PSSCH resource scheduled through one DCI instead.

R2-2107268 Summary of [POST114-e][706][V2X/SL] Discussion on remaining FFSs/open issues in SL DRX timer maintenance (InterDigital) InterDigital discussion Rel-17 NR\_SL\_enh-Core

Proposal 2 – Inactivity timer is not (pre)configured per QoS profile for unicast in IDLE/INACTIVE or OOC case [8/14].

* Agreed.

Proposal 3 – In Groupcast, the RX UE maintains a separate inactivity timer for each L2 Destination ID [14/14]

* Agreed.

Proposal 4 – SL inactivity timer can be supported for all scenarios of groupcast [10/14]

* Agreed.

Proposal 5 – Stopping the inactivity timer to handle L1/L2 mismatch is not supported. [8/13]

* Agreed.

Proposal 6 – Specifying mechanisms to use HARQ feedback to handle Inactivity timer mismatch between TX and RX UE (for unicast and groupcast) is not considered in this release. [14/14]

* Agreed.

Proposal 7 – Restarting the Inactivity timer at the TX UE is not needed upon transmission of an SCI indicating a retransmission. [14/14]

* Agreed.

Proposal 8 – Inactivity timer can be used for unicast whether HARQ feedback is enabled or disabled. [14/14]

* Agreed.

Proposal 9 – For groupcast, the TX UE restarts its timer corresponding to inactivity timer for the L2 destination ID (used for determining the allowable transmission time) upon reception of new data with the same destination ID. [13/14]

* Agreed.

Proposal 10 – 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. [11/15]

* Agreed.

[Ericsson]: Do we support two different values for a given DRX configuration? [OPPO, Huawei, Apple, Intel, Vivo]: Question seems more stage 3 issue, which we need further discussion later.

Proposal 11 – Regardless of whether there is uncertainty or not, in the timing of a retransmission for a HARQ process the RX UE uses a retransmission timer [13/15].

* Agreed.

[LG, Vivo, OPPO]: Not sure if “no uncertainty” actually exists. If majority companies support the proposal, we can add FFS on what case is for “no uncertainty” [InterDigital]: As mentioned in the email discussion, “no uncertainty” cases are, e.g. mode1 operation or pre-emption is not configured for mode 2 operation. [LG]: There would be other cases, e.g. UL/SL prioritization, etc. [Lenovo]: It is RX UE behaviour, then how does RX UE know whether mode1 is used or pre-emption is not applied? [OPPO]: To soften the concerns, we can consider combined single proposal from this proposal and previous agreement on the uncertainty case regardless of whether there is uncertainty or not. RX UE does not distinguish two cases.

Proposal 12 – For unicast and groupcast, retransmission timer value is configurable [10/14].

* Agreed.

Proposal 13 –SL HARQ RTT timer and SL Retransmission timer are not used for broadcast transmissions. [13/15].

* Agreed.

[Ericsson]: We need FFS on how to handle blind retransmissions? [InterDigital]: It is handled by proposal 19. [OPPO, ZTE, Apple]: Do not see the need of this FFS. Need of FFS should be more justified.

Proposal 14 – The SL active time of the RX UE includes the slots associated with announced periodic transmissions by the TX UE (as per SCI) [9/15].

* Noted.

[OPPO, Apple, Xiaomi, Vivo, Intel, CATT, Qualcomm]: It is related to the LS that sent to RAN1 (i.e. if RX UE can sync with TX UE’s timing). We first should wait for RAN1 response LS. On-duration and DRX cycle can cover the periodic transmissions so use case is not clear. [ZTE]: Since majority companies supported this option, at least we can set it as working assumption [Huawei, Ericsson, InterDigital, Lenovo]: Supported the option and consider it is useful. [Session chair]: Based on the discussion, it seems not clear whether the proposal is supported by majority companies. Let’s check companies’ views:

* Companies supporting the proposal: Ericsson, Huawei, AsusTek, Lenovo, InterDigital, LG, ZTE, Convida, MediaTek (9)
* Companies not supporting the proposal: CATT, Intel, OPPO, Vivo, Nokia, QC, Apple, Xiaomi (8)

Proposal 15 – When data is available for transmission to one or more RX UE in DRX, TX UE selects the resources taking into account the active time (current or future) of the RX UE(s) determined by the timers maintained at the TX UE. Details are FFS. FFS whether RAN1 or RAN2 implement this restriction. Send LS to RAN1 [14/15].

* Agreed.

[OPPO]: Ok with proposal in general, however which specification impact is foreseen? RAN1 or RAN2? We understand proposal does not restrict any option now. [CATT]: We need to send LS to RAN1? [Session chair]: Assume yes. [Lenovo]: Is it also coupled with LCP, so we should include LCP aspect into the LS. [Session chair]: We may include the agreement of LCP also. [Lenovo, Ericsson]: Agree with session chair. [InterDigital, Qualcoimm, OPPO, Lenovo, Ericsson, CATT]: LS to RAN1 is needed. [LG]: RAN1 action should be clearly clarified, i.e. whether RAN1 considers SL DRX active time into candidate resource selection procedure specified in RAN1. [Session chair]: We need to ask RAN1 should consider SL DRX active time, which MAC provides, in the candidate resource selection specified in RAN1.

Proposal 16 – For unicast, the TX UE selects the resources for the initial transmission associated with any active time (e.g. on duration timer or inactivity timer, or retransmission timer) at the RX UE. How to handle cases when a transmission may cause these timers to be running at the RX UE is FFS. FFS on groupcast. FFS on whether any spec impact. [10/15].

* Agreed.

[OPPO]: proposals are MAC behaviour or L1 behaviour? [LG]: Proposal 16 – 19 have dependency with FFS in the proposal 15. [Ericsson]: Proposals are independent on FFS in the proposal 15. [Session chair]: understand the proposal 16 just mean for initial transmission, it can be sent when any DRX active timer runs, e.g. even when HARQ retransmission timer runs, the initial transmission can be sent. [InterDigital, Qualcomm, Ericson, Huawei, Lenovo]: Agree with session chair.

Proposal 17 – For unicast, the TX UE can select the resources for the retransmission associated with any active time (e.g. on duration timer or inactivity timer, or retransmission timer) at the RX UE. How to handle cases when a transmission may cause these timers to be running at the RX UE is FFS. FFS on groupcast. FFS on whether any spec impact. [14/15].

* Agreed.

Proposal 18 – For broadcast, the TX UE can select the resources for the initial transmission associated with any active time supported by broadcast (i.e. on duration timer) at the RX UE. [14/15].

* Agreed.

Proposal 19 – For broadcast, the TX UE can select the resources for the retransmission associated with any active time supported by broadcast (i.e. on duration timer) at the RX UE. [10/15].

* Agreed.

Agreements on SL DRX timer maintenance:

1: Inactivity timer is not (pre)configured per QoS profile for unicast in IDLE/INACTIVE or OOC case.

2: In groupcast, the RX UE maintains a separate inactivity timer for each L2 Destination ID.

3: SL inactivity timer can be supported for all scenarios of groupcast.

4: Stopping the inactivity timer to handle L1/L2 mismatch is not supported.

5: Specifying mechanisms to use HARQ feedback to handle Inactivity timer mismatch between TX and RX UE (for unicast and groupcast) is not considered in this release.

6: Restarting the inactivity timer at the TX UE is not needed upon transmission of an SCI indicating a retransmission.

7: Inactivity timer can be used for unicast whether HARQ feedback is enabled or disabled.

8: For groupcast, the TX UE restarts its timer corresponding to inactivity timer for the L2 destination ID (used for determining the allowable transmission time) upon reception of new data with the same destination ID.

9: 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.

10: Regardless of whether there is uncertainty or not, in the timing of a retransmission for a HARQ process the RX UE uses a retransmission timer.

11: For unicast and groupcast, retransmission timer value is configurable.

12: SL HARQ RTT timer and SL Retransmission timer are not used for broadcast transmissions.

13: When data is available for transmission to one or more RX UE in DRX, TX UE selects the resources taking into account the active time (current or future) of the RX UE(s) determined by the timers maintained at the TX UE. Details are FFS. FFS whether RAN1 or RAN2 implement this restriction. Send LS to RAN1.

14: For unicast, the TX UE selects the resources for the initial transmission associated with any active time (e.g. on duration timer or inactivity timer, or retransmission timer) at the RX UE. How to handle cases when a transmission may cause these timers to be running at the RX UE is FFS. FFS on groupcast. FFS on whether any spec impact.

15: For unicast, the TX UE can select the resources for the retransmission associated with any active time (e.g. on duration timer or inactivity timer, or retransmission timer) at the RX UE. How to handle cases when a transmission may cause these timers to be running at the RX UE is FFS. FFS on groupcast. FFS on whether any spec impact.

16: For broadcast, the TX UE can select the resources for the initial transmission associated with any active time supported by broadcast (i.e. on duration timer) at the RX UE.

17: For broadcast, the TX UE can select the resources for the retransmission associated with any active time supported by broadcast (i.e. on duration timer) at the RX UE.

* [AT115-e][710][V2X/SL] LS to RAN1 (InterDigital)

 **Scope:** Inform RAN1 of RAN1 related RAN2 agreements (including candidate resource selection aspect) and ask RAN1 to take into account for their specification works.

 **Intended outcome:** Approve the LS in R2-2108997. Will be approved by email.

 **Deadline:** 8/27, 10:00am UTC

* [AT115-e][702][V2X/SL] SL DRX configuration for UC (Ericsson)

 **Scope:** Discuss following FFS/TBD/open issues:

Q1: Any specification impact to set SL DRX inactivity timer value with QoS consideration?

 Q2: Need of SL DRX assistance information REQ from TX UE to RX UE?

 Q3: What information is included in the assistance information from RX UE to TX UE?

 Q4: When RX UE sends SL DRX assistance information to TX UE?

 Q5: Is RX UE’s SL DRX configuration failure/reject to TX UE’s SL DRX configuration needed?

 **Intended outcome:** Discussion summary in R2-2108982

 **Deadline:** 8/24 10:00am UTC

R2-2108982 Summary of [AT115-e][702][V2X/SL] SL DRX configuration for UC Ericsson discussion Rel-17 NR\_SL\_enh-Core

Easy Proposals for Block Approval

Proposal 1 (Easy)For determining SL DRX configuration by TX UE, SL DRX capable RX UE is not mandatory to provide the SL DRX assistance information to TX UE. FFS on the interpretation if assistance information is not provided. (18/21)

* Agreed.

[Apple]: Assistance information is always helpful for the UE power saving. Prefer to make it as mandatory. [LG]: If the assistance information is not provided, it is not clear whether TX UE considers that RX UE does not want DRX operation or RX UE is ok with any DRX configuration. [Session chair]: We can make it at least as working assumption since there are some unclear parts. [OPPO]: Agree with session chair. [Apple]: As compromise, suggest to put FFS on the interpretation if assistance information is not provided.

Proposal 5 (Easy) For SL unicast, RX UE may include its desired SL DRX configuration in the assistance information which is transmitted to TX UE (19/21).

* Agreed.

[LG]: Ok with the proposal, but wants to clarify if desired SL DRX configuration can be multiple ones. [Session chair]: Suggest to discuss that level in stage 3 discussion. [Intel]: Agree with session chair.

Proposal 8 (Easy)For SL unicast, RX UE may send the SL DRX assistance information to TX UE when the previously transmitted SL DRX assistance information has changed (18/20).

* Agreed.

Proposal 9 (Easy)(19/21) For unicast, a two-step process (i.e., RX UE accepts or rejects TX UE’s suggestion) is adopted as a baseline, i.e., FFS on the following TX/RX UE behaviours when reject happens.

• Step 1: TX UE sends RRCReconfigurationSidelink containing a SL DRX configuration to be applied by RX UE to RX UE

• Step 2: RX UE replies with a PC5-RRC signalling indicating acceptance or rejection for the SL DRX configuration. FFS on whether the new rejection cause for SL DRX needs to be defined. FFS on whether RRCReconfigurationFailureSidelink or RRCReconfigurationCompleteSidelink is used in Step 2.

* Agreed.

[LG]: Ok with the proposal but what should be following TX UE behaviour if RX UE rejects the DRX configuration? [Ericsson]: That issue needs further discussion. [Lenovo]: Assume in reject, RX UE may send assistance information again and TX UE may send DRX configuration again to RX UE.

Proposal 7 (Easy)For SL unicast, RX UE may send the SL DRX assistance information to TX UE at the following time (19/21)

• before TX UE sends the SL DRX configuration to RX UE via RRCReconfigurationSidelink

• after TX UE has sent the SL DRX configuration to RX UE via RRCReconfigurationSidelink

* Skipped.

Proposals for Online discussion

Proposal 4 (For discussion) The SL DRX assistance information request message is not supported (16/21).

* Noted. More discussion is needed to see how it works.

[LG]: We need SL DRX assistance information REQ otherwise how the RX UE can set the desired/suggested DRX configuration? Note RX UE cannot know the traffic pattern information. [OPPO]: SL DRX assistance information REQ is new message or can we use the existing SL-RRC message to include any assistance information from TX UE? [Huawei]: For RRC connected TX UE, it would be good to have this message. [Apple]: How RX UE knows if TX UE supports SL DRX or not? If TX UE only knows both sides’ UE capabilities, SL DRX assistance information REQ would be needed. [Intel]: We already decided TX UE centric SL DRX configuration, then why we need TX UE sends assistance information for the assistance information from RX UE. It sounds not aligned with TX centric SL DRX configuration. [Lenovo]: Having SL DRX assistance information REQ could lead to deadlock situation. [Lenovo]: For LG’s question, RX UE may set desired/suggested SL DRX starting time but not for SL DRX cycle length which is directly related to traffic pattern in TX UE. [InterDigital]: Feel some sympathy to LG. [Session chair]: suggest to have more time to see how it works without any direct relation to traffic pattern in TX UE. If workable and sufficient, we can agree with proposal 4, otherwise we may need to consider SL DRX assistance information REQ.

The following two proposals will depend on the outcome from [POST114-e][706][V2X/SL] on whether the preonfiguration or configuration in the SIB is needed for unicast SL DRX.

Proposal 2 (For discussion) For unicast in IDLE/INACTIVE or OOC, in case there is no SL DRX assistance information received from RX UE, TX UE derives the value of the inactivity timer based on its implementation. FFS on the interpretation if assistance information is not provided. (14/21)

* Agreed.

[ZTE]: It depends on how to interpret if assistance information is not provided. [Ericsson, Apple]; We can put similar FFS here as compromise. [LG]: We don’t need FFS.

Proposal 3 (For discussion) For unicast in IDLE/INACTIVE or OOC, if TX UE has obtained assistance information from RX UE, TX UE derives the value of the inactivity timer based on its implementation. (15/21)

* Agreed.

[Lenovo]: Ok with proposal in general, however we don’t know whether inactivity timer is included in the assistance information or not. It is somewhat coupled with P4.

Proposals of Low priority

Proposal 6 (Low priority) For SL unicast, RAN2 to further discuss whether the SL DRX assistance information may contain the following content

• RX UE’s SL DRX configuration of other SL links, and/or other cast types (i.e., GC or BC). (6/21)

• RX UE’s Uu DRX configuration if RX UE is in RRC\_CONNECTED. (8/21)

* Skipped.

Agreements on SL DRX configuration for UC:

1: For determining SL DRX configuration by TX UE, SL DRX capable RX UE is not mandatory to provide the SL DRX assistance information to TX UE. FFS on the interpretation if assistance information is not provided.

2: For SL unicast, RX UE may include its desired SL DRX configuration in the assistance information which is transmitted to TX UE.

3: For SL unicast, RX UE may send the SL DRX assistance information to TX UE when the previously transmitted SL DRX assistance information has changed.

4: For unicast, a two-step process (i.e., RX UE accepts or rejects TX UE’s suggestion) is adopted as a baseline, i.e., FFS on the following TX/RX UE behaviours when reject happens.

 • Step 1: TX UE sends RRCReconfigurationSidelink containing a SL DRX configuration to be applied by RX UE to RX UE

 • Step 2: RX UE replies with a PC5-RRC signalling indicating acceptance or rejection for the SL DRX configuration. FFS on whether the new rejection cause for SL DRX needs to be defined. FFS on whether RRCReconfigurationFailureSidelink or RRCReconfigurationCompleteSidelink is used in Step 2.

5: For unicast in IDLE/INACTIVE or OOC, in case there is no SL DRX assistance information received from RX UE, TX UE derives the value of the inactivity timer based on its implementation. FFS on the interpretation if assistance information is not provided.

6: For unicast in IDLE/INACTIVE or OOC, if TX UE has obtained assistance information from RX UE, TX UE derives the value of the inactivity timer based on its implementation.

* [AT115-e][703][V2X/SL] SL DRX configuration for GC/BC (OPPO)

 **Scope:** Discuss following FFS/TBD/open issues:

Q1: Whether the dedicated RRC is also used to configure SL DRX configuration for GC/BC?

 Q2: How to configure SL DRX on-duration and inactivity timers for GC/BC?

 Q3: How to configure SL DRX RTT and retransmission timers for GC/BC?

 Q4: Need of down-select other DRX configurations for a specific L2 DST ID if the UE has multiple QoS profiles for same DST L2 ID? If needed, how to do down-selection?

 Q5: Need to define default DRX configuration for GC/BC?

 Q6: Need for SL DRX MAC CE for GC/BC?

 **Intended outcome:** Discussion summary in R2-2108983

 **Deadline:** 8/24 10:00am UTC

R2-2108983 Summary of [AT115-e][703][V2X/SL] SL DRX configuration for GC/BC (OPPO) OPPO discussion Rel-17 NR\_SL\_enh-Core

Proposal 1 For SL BC and GC, for in-coverage case, RRC\_CONNECTED TX-UE/RX-UE can obtain DRX configuration from 1) SIB which is delivered via dedicated RRC signalling as in legacy [16/17], and from 2) from dedicated RRC signalling during handover, i.e., in an RRCReconfiguration message including reconfigurationWithSyn [16/17]. Otherwise, RRC\_CONNECTED TX-UE/RX-UE does not expect DRX configuration from dedicated RRC signalling [15/17].

* Agreed.

[Vivo]: How to align DRX configurations between IC and OOC? [Session chair]: It is based on network coordination like resource pool configuration [LG, Apple, Lenovo, Ericsson, Qualcomm, CATT, InterDigital, ZTE, Nokia]: Agree with session chair. [Session chair]: If we have big problem with proposal 1, we can revisit it.

Proposal 2 For BC/GC, the on-duration timer length [17/17] and inactivity timer length (only for GC) [16/17] are configured per QoS profile.

* Agreed.

Proposal 3 For GC, do not pursue per-QoS or per-L2-ID configuration for RTT timer length [16/17] and retransmission timer length [15/17].

* Agreed.

[Huawei, Xiaomi, LG]: Agree with RTT timer, but not sure for retransmission timer. It can be related with PDB. [Qualcomm]: It should not be directly related with PDB. Instead, it would be related with remaining PDB. [InterDigital, Lenovo, Ericsson]: It is quite difficult to map one2one between retransmission timer and QoS since it also needs to consider others, e.g. number of HARQ retransmissions, etc. [Session chair]: If we have big problem with proposal 1, we can revisit it.

Proposal 4 If the UE has multiple QoS profiles for same DST L2 ID, and thus they associate with different DRX cycle length value(s), RAN2 further discuss whether UE has to down-select to a single associated DRX cycle length value [8/15] or not [7/15].

* Skipped.

Proposal 5 If the UE has multiple QoS profiles for same DST L2 ID, and thus they associate with different on-duration timer length value, RAN2 further discuss whether UE has to down-select to a single associated on-duration timer length value [8/19] or not [9/19].

* Skipped.

Proposal 6 If the UE has multiple QoS profiles for same DST L2 ID, and thus they associate with different inactivity timer length value(s), UE has to down-select [8/12] to the largest inactivity timer length value [8/8].

* Skipped.

Proposal 7 For BC/GC, default DRX configuration(s) can be used for QoS profile(s) which cannot be mapped into DRX configuration configured for the dedicated QoS profile(s) [17/17].

* Agreed.

[Vivo]: Do we have common default SL DRX configuration to both GC and BC? Or we have each one for GC and BC? [OPPO]: It is assumed common default to both GC and BC during the email discussion. [Apple]: Some SL DRX configuration(s), e.g. SL DRX inactivity timer, is not applicable to BC. [CATT]: Suggest to change “a default DRX configuration” to “default DRX configuration(s)” and further details can be discussed in the stage 3.

Proposal 8 For BC/GC, do not pursue DRX command MAC CE in Rel-17 [15/17].

* Agreed.

Agreements on SL DRX configuration for GC/BC:

1: For SL BC and GC, for in-coverage case, RRC\_CONNECTED TX-UE/RX-UE can obtain DRX configuration from 1) SIB which is delivered via dedicated RRC signalling as in legacy, and from 2) from dedicated RRC signalling during handover, i.e., in an RRCReconfiguration message including reconfigurationWithSyn. Otherwise, RRC\_CONNECTED TX-UE/RX-UE does not expect DRX configuration from dedicated RRC signalling.

2: For BC/GC, the on-duration timer length and inactivity timer length (only for GC) are configured per QoS profile.

3: For GC, do not pursue per-QoS or per-L2-ID configuration for RTT timer length and retransmission timer length.

4: For BC/GC, default DRX configuration(s) can be used for QoS profile(s) which cannot be mapped into DRX configuration configured for the dedicated QoS profile(s).

5: For BC/GC, do not pursue DRX command MAC CE in Rel-17.

* [AT115-e][704][V2X/SL] Others (ZTE)

 **Scope:** Discuss following FFS/TBD/open issues:

Q1: What’s RX UE behaviour on the reception of SL DRX MAC CE?

 Q2: Need to define when TX UE sends SL DRX MAC CE?

 Q3: How to handle DCR and other messages before SL DRX configuration is started/applied?

 Q4: When exactly should be the time SL DRX configuration is started/applied?

 **Intended outcome:** Discussion summary in R2-2108984

 **Deadline:** 8/24 10:00am UTC

R2-2108984 Summary of email [AT115-e][704][V2X/SL] Others ZTE discussion Rel-17 NR\_SL\_enh-Core

Q1: What’s RX UE behaviour on the reception of SL DRX MAC CE?

Proposal 1-1: [Easy 22/22] For SL unicast, UE stops on-duration timer and inactivity timer for the unicast link where SL DRX MAC CE is received from peer UE.

* Agreed.

Q2: Need to define when TX UE sends SL DRX MAC CE?

Proposal 2-3: [Easy 18/22] When TX UE sends SL DRX MAC CE is up to UE implementation.

* Agreed.

Q3: How to handle DCR and other messages before SL DRX configuration is started/applied?

Proposal 3-1: [Easy] For unicast, SL BC DRX configuration is applied for DCR message [20/22]. FFS on whether default SL BC DRX configuration or which SL BC DRX configuration for DCR message should be used.

* Agreed.

[Ericsson]: We just agreed default SL DRX configuration for BC. Is there any difference between default SL BC DRX configuration and SL BC DRX configuration for DCR message? [Xiaomi]: Default SL BC DRX configuration is only applied to Rel-17 UEs. Then how does Rel-16 UE can transmit/receive DCR message? [OPPO]: Default SL DRX configuration is the only one that can be applicable because there is no QoS information when DCR message is sent. [Apple]: Default SL DRX configuration was not really discussed in the offline discussion.

Proposal 3-2:RAN2 shall discuss whether SL DRX is applied for PC5-S messages (SMC, DCA, etc) that are transmitted during unicast connection establishment.([9/21] support, [12/21] not support).

* Skipped.

Proposal 3-3: RAN2 shall discuss whether SL DRX is applied for messages(i.e. PC5-S, PC5-RRC, etc) exchanged after unicast link establishment and before SL unicast DRX configuration is applied.[10/22] support, [15/22] not support.

* Skipped.

Proposal 3-4: [low priority, 8/9]The dedicated broadcast DRX configuration can be the same dedicated DRX Configuration if dedicated BC DRX configuration is adopted for all messages before SL unicast DRX configuraiton is applied.

* Skipped.

Proposal 3-7: [15/22] DRX configuration for V2X group management signaling is out of RAN2 scope.

* Agreed as working assumption.

[Ericsson]: SA2 is discussing that discovery message includes some GC related messages. We may need to check SA2 status further. [OPPO]: V2X group management signaling is transparent to AS layer. [Session chair]: Would like to suggest to agree it as working assumption and we can check SA2 status until next meeting. If the proposal violates SA2 status, we can revisit it. [Huawei, CATT]: Agrees with session chair. [Lenovo]: We need a frame work that can handle upper layer procedure and not need us to address them on case by case basis.

Proposal: 3-7a:[low priority] If DRX configuration for V2X group management signaling need to be discussed(i.e. Proposal 3-7 is not agreed), FFS on how to configure it.

* Skipped.

Q4: When exactly should be the time SL DRX configuration is started/applied?

Proposal4-1a: [Easy 21/22] For unicast, if serving gNB of a RRC\_CONECTED TX UE determines the DRX configuration of RX UE, TX UE should send the unicast DRX configuration to the RX UE upon receiving the corresponding DRX configuration from the serving gNB.

* Agreed.

[LG]: If RX UE’s gNB performs Uu DRX and SL DRX alignment, what’s RX UE’s behavior between two procedures (TX UE to RX UE procedure and gNB to RX UE procedure)?

Proposal4-1b: [Easy 19/22] For unicast, when to send the DRX configuration to RX UE is up to TX UE implementation for the case that TX UE determines the DRX configuration of the RX UE, i.e. TX UE can send the DRX configuration to RX UE without any restriction.

* Agreed.

Proposal 4-1c: [15/22] For unicast, RAN2 discuss whether RX UE considers the SL unicast DRX configuration is applied after sending SL DRX confirmation message to TX UE. How RX UE confirms the DRX configuration is FFS(e.g, by sending RRCReconfigurationCompleteSidelink).

* Skipped.

Proposal 4-2: [Easy 18/21] For GC, it’s up to UE implementation to determine when the DRX configuration for SL GC communication is applied, i.e. no spec impact.

* Agreed.

[CATT]: Any specific reason to put “no spec impact” here. [Session chair]: Not really needed, but no harm for stage 3 discussion later (to avoid unnecessary discussion).

Proposal 4-3: [Easy 19/21] For BC, it’s up to UE implementation to determine when the DRX configuration for SL BC communication is applied, i.e. no spec impact.

* Agreed.

Agreements on other remaining issues:

1: For SL unicast, UE stops on-duration timer and inactivity timer for the unicast link where SL DRX MAC CE is received from peer UE.

2: When TX UE sends SL DRX MAC CE is up to UE implementation.

3: For unicast, SL BC DRX configuration is applied for DCR message [20/22]. FFS on whether default SL BC DRX configuration or which SL BC DRX configuration for DCR message should be used.

4: Working assumption: DRX configuration for V2X group management signaling is out of RAN2 scope.

5: For unicast, if serving gNB of a RRC\_CONECTED TX UE determines the DRX configuration of RX UE, TX UE should send the unicast DRX configuration to the RX UE upon receiving the corresponding DRX configuration from the serving gNB.

6: For unicast, when to send the DRX configuration to RX UE is up to TX UE implementation for the case that TX UE determines the DRX configuration of the RX UE, i.e. TX UE can send the DRX configuration to RX UE without any restriction.

7: For GC, it’s up to UE implementation to determine when the DRX configuration for SL GC communication is applied, i.e. no spec impact.

8: For BC, it’s up to UE implementation to determine when the DRX configuration for SL BC communication is applied, i.e. no spec impact.

R2-2107156 Remaining issues on the sidelink DRX for unicast Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2106985 Leftover Issues for Sidelink Unicast DRX CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2106986 Leftover Issues for Sidelink Groupcast and Broadcast DRX CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2106987 Further Issues Regarding to the Tx Profile CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2106988 Impacts of SL DRX on Other Procedures CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2107041 Discussion on left issue from [704][705][706] OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2107151 NR SL DRX Fraunhofer IIS, Fraunhofer HHI discussion Rel-17

R2-2107155 Consideration on sidelink DRX for groupcast and broadcast Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2107157 Discussion on SL communication impact on Uu DRX Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2107190 Left issues on SL-DRX OPPO discussion Rel-17 NR\_SL\_enh-Core

=> Revised in R2-2108830

R2-2108830 Left issues on SL-DRX OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2107191 Discussion on SL-DRX impact to mode-1 scheduling OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2107238 Leftover issues on overall flow of unicast TX-UE centric mechanism NEC Corporation discussion

R2-2107239 Discussion on DRX suspend/resume mechanism NEC Corporation discussion

R2-2107242 Further discussion on Uu/SL DRX timer LG Electronics France discussion Rel-17 NR\_SL\_enh-Core

R2-2107269 Resource Allocation Considering DRX InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2107270 Open Issues on SL DRX Timers InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2107271 DRX Configuration Determination in Unicast InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2107310 On SL DRX Configuration aspects Intel Corporation discussion Rel-17 NR\_SL\_relay-Core

R2-2107311 Discussion on SL DRX Timers Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2107312 On DRX wake-up time alignment Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2107355 Remaining issues on DRX Timers for SL Unicast Spreadtrum Communications discussion Rel-17

R2-2107432 Consideration on Backward compatibility for SL DRX ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2107433 Further consideration on DRX configuration ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2107434 Discussion on SL DRX timer ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2107472 Remaining aspects of SL DRX Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2107474 Handling coexistence between UEs supporting different releases Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2107626 Discussion on remaining issues of SL DRX configurations Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2107627 Discussion on remaining issues of SL impact of Uu-DRX Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2107653 Remaining details on HARQ RTT and Retransmission Timer for SL DRX Fujitsu discussion Rel-17 NR\_SL\_enh-Core R2-2105400

R2-2107654 SL DRX impact on LCP Fujitsu discussion Rel-17 NR\_SL\_enh-Core R2-2105401

R2-2107968 DRX impact on Uu Xiaomi communications discussion

R2-2107969 Discussion on Sidelink DRX for unicast Xiaomi communications discussion

R2-2107970 Discussion on Sidelink DRX for broadcast and groupcast Xiaomi communications discussion

R2-2108014 DRX Configuration for UC BC GC and its interaction with Sensing Lenovo Mobile Com. Technology discussion NR\_SL\_enh-Core

R2-2108016 DRX coordination between Uu and SL Lenovo Mobile Com. Technology discussion NR\_SL\_enh-Core

R2-2108072 Proposals for Sidelink DRX Sony discussion Rel-17 NR\_SL\_enh-Core

R2-2108151 Consideration on TX centric SL DRX configuration and alignment LG Electronics Inc. discussion Rel-17 NR\_SL\_enh-Core

R2-2108214 Discussion on Compatible Issues with Rel 16 UEs Qualcomm Finland RFFE Oy discussion

R2-2108215 Discussion on RLF and PC5 RRC Connection with SL DRX Qualcomm Finland RFFE Oy discussion

R2-2108217 Discussion on Remaining Issues Qualcomm Finland RFFE Oy discussion

R2-2108222 A Default PC5 DRX Configuration for Broadcast/Groupcast/Unicast vivo discussion

R2-2108223 DRX duration calculation vivo, Xiaomi, ZTE corporation discussion

R2-2108224 Remaining issues on SL DRX for unicast/groupcast/broadcast vivo discussion

R2-2108426 Discussion on TBD/FFS Samsung Research America discussion

R2-2108427 Further consideration for SL DRX operation in groupcast Samsung Research America discussion

R2-2108428 Further consideration for SL DRX and Uu DRX alignments Samsung Research America discussion

R2-2108469 Discussion on alignment of mode 1 RA of Tx UE and SL DRX of Rx UE Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh-Core

R2-2108470 Further Issues on Sidelink Traffic Pattern for SL DRX Configuration Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_enh-Core R2-2105958

R2-2108471 SL DRX for SL groupcast Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh-Core

R2-2108765 SL DRX enabled UE Mode 2 operation ITL discussion Rel-17

R2-2108822 Remaining issues of SL DRX MediaTek Inc. discussion Rel-17 NR\_SL\_enh-Core

### 8.15.3 Resource allocation enhancements RAN2 scope

R2-2108429 Initial discussion on enhanced resource allocation Samsung Research America discussion

R2-2107042 Discussion on resource allocation enhancement OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2107158 Consideration on resource allocation enhancements Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2107181 Power Reduction for Sidelink Mode 2 Resource Allocation Fraunhofer IIS, Fraunhofer HHI discussion

R2-2107182 Inter-UE Coordination for Sidelink Mode 2 Resource Allocation Fraunhofer IIS, Fraunhofer HHI discussion R2-2105499

R2-2107240 Discussion on inter-UE coordination for sidelink mode 2 resource allocation NEC Corporation discussion

R2-2107272 RAN2 Aspects of Inter-UE Coordination InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2107368 Discussion on resource allocation enhancement for NR sidelink Spreadtrum Communications discussion Rel-17

R2-2107435 Discussion on inter-UE coordination ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2107628 Discussion on Inter-UE Coordination Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2107629 NR SL Resource allocations for Pedestrian UEs Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2107918 Discussion on sidelink resource allocation enhancements Lenovo, Motorola Mobility discussion Rel-17

R2-2107971 Resource allocation enhancement impact in RAN2 Xiaomi communications discussion

R2-2108073 Discusison on Sidelink sensing Sony discussion Rel-17 NR\_SL\_enh-Core

R2-2108118 Power efficient resource allocation and Inter-UE coordination LG Electronics France discussion Rel-17 NR\_SL\_enh-Core

R2-2108191 General principles for resource allocation enhancements for SL mode 2 Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2108225 Discussion on inter-UE coordination for sidelink mode2 vivo discussion

R2-2108295 Resource Allocation Enhancements for Reduced Power Consumption and Enhanced Reliability Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2108472 Reduced monitoring of SL resource pools for power saving Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh-Core

R2-2108752 On Resource Allocation Mode 2 Enhancement for NR Sidelink Convida Wireless discussion Rel-17 R2-2106358

### 8.15.4 Other

R2-2107473 Interaction between partial sensing and DRX Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2107917 Discussion on backward compatible issue of SL DRX Lenovo, Motorola Mobility discussion Rel-17

R2-2108823 SL sync search optimization MediaTek Inc. discussion Rel-17 NR\_SL\_enh-Core R2-2106441

# Post-Meeting Email Discussions

[Session chair]: Asked the companies if we need any email discussion to identify RAN2 scope/issues in resource allocation enhancements 8.15.3, but not related to inter-UE coordination mechanism (considering inter-UE coordination is prematured in RAN1). [Ericsson]: In general, we need to wait for more progress from RAN1 before RAN2 starts discussion for 8.15.3. [Session chair]: Ask the companies if we need any email discussion for MAC LCP procedure. [OPPO]: It is stage 3 issue and expect CR rapporteur will provide open issue list for stage 3 discussion. Then based on the open issue list, we will have further discussion.

* [POST115-e][711][V2X/SL] 38.300 running CR (InterDigital)

 **Scope:** Update the endorsed draft CR in R2-2108981 with the agreements made this meeting.

 **Intended outcome:** 38.300 running CR to be endorsed.

**Deadline:** Short email discussion (not for RP).

* [POST115-e][712][V2X/SL] 38.321 running CR (LG)

 **Scope:** Prepare the draft CR with the agreements made up to now. Rapporteur can provide stage 3 open issue list to help further discussion.

 **Intended outcome:** 38.321 running CR to be endorsed. Open issue list for stage 3 discussion.

**Deadline:** Long email discussion

* [POST115-e][713][V2X/SL] 38.331 running CR (Huawei)

 **Scope:** Prepare the draft CR with the agreements made up to now. Rapporteur can provide stage 3 open issue list to help further discussion.

 **Intended outcome:** 38.331 running CR to be endorsed. Open issue list for stage 3 discussion.

**Deadline:** Long email discussion

* [POST115-e][714][V2X/SL] (OPPO)

 **Scope:** For UC and GC, discuss the need of any mechanism to avoid SL DRX inactivity timer (possibly also including HARQ RTT/retransmission timer) mismatch between network and the TX UE for mode1 operation. If companies consider solution is needed, discuss the possible options to solve the issue.

 **Intended outcome:** Discussion summary

**Deadline:** Long email discussion. 1st phase: check companies’ views for the simple/general question, collect candidate options from the companies for the question including multiple options before checking all companies’ views for each option. 2nd phase: check companies’ views for all questions (no restriction) Checking the rapporteur summary is done from the end of 2nd phase to tdoc submission.

* [POST115-e][715][V2X/SL] (Vivo)

 **Scope:** Discuss 1) how to calculate/determine SL DRX timer length (SL DRX cycle, SL DRX on-duration timer, SL DRX inactivity timer, HARQ RTT and retransmission timer), e.g. equation based on DFN, equation based on number of SL logical slots, etc., 2) how to calculate SL DRX start time (time where the first SL DRX on-duration timer starts) for UC and GC/BC, e.g. equation for UC, how to take L2 destination id into account for GC/BC, etc.

 **Intended outcome:** Discussion summary

**Deadline:** Long email discussion. 1st phase: check companies’ views for the simple/general question, collect candidate options from the companies for the question including multiple options before checking all companies’ views for each option. 2nd phase: check companies’ views for all questions (no restriction). Checking the rapporteur summary is done from the end of 2nd phase to tdoc submission.

* [POST115-e][716][V2X/SL] Identified FFS/open issues (CATT)

 **Scope:** Discuss identified FFS/open issues including: 1) FFS whether a TX profile identifies a release, or one or more sidelink feature groups, 2) FFS whether a TX profile needs to be provided with service type information or L2 id when upper layer indicates to AS layer, 3) FFS on slot or symbol where the start of SL-specific drx-HARQ-RTT-Timer and SL-specific drx-RetransmissionTimer, 4) FFS on the specific values of HARQ RTT that can be used for HARQ disabled case, 5) How to handle cases when a transmission may cause these timers to be running at the RX UE is FFS. FFS on groupcast. FFS on whether any spec impact (in agreement 14 and 15 in SL DRX timer maintenance, 6) what information is included in the assistance information from RX UE to TX UE? 7) Need of SL DRX assistance information REQ from TX UE to RX UE, 8) If SL DRX assistance information REQ is needed, what information is included? 9) FFS on the interpretation if assistance information is not provided, 10) FFS on the following TX/RX UE behaviours when reject happens, 11) FFS on whether the new rejection cause for SL DRX needs to be defined, 12) FFS on whether RRCReconfigurationFailureSidelink or RRCReconfigurationCompleteSidelink is used in Step 2, 13) Need of down-selection for SL DRX configuration when multiple QoS profiles are associated for same DST L2 ID, 14) Common or separate default SL DRX configuration for GC and BC? 15) FFS on whether default SL BC DRX configuration or which SL BC DRX configuration for DCR message should be used, 16) Whether SL DRX is applied after DCR message and before SL unicast DRX configuration is applied? 17) Whether we can confirm the WA that DRX configuration for V2X group management signaling is out of RAN2 scope.

 **Intended outcome:** Discussion summary

**Deadline:** Long email discussion. 1st phase: check companies’ views for the simple/general question, collect candidate options from the companies for the question including multiple options before checking all companies’ views for each option. 2nd phase: check companies’ views for all questions (no restriction). Checking the rapporteur summary is done from the end of 2nd phase to tdoc submission.