3GPP TSG-RAN WG2 Meeting #114 electronic R2-210xxxx
Online, May 19 – 27, 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.

R2-2104711 LS on the configuration of search spaces for scheduling SL transmissions (R1-2104063; contact: Ericsson) RAN1 LS in Rel-16 5G\_V2X\_NRSL-Core To:RAN2

* Noted.

[In-principle agreed CRs]

R2-2105587 Clarification on LTE DAPS and sidelink on 36.300 Huawei, HiSilicon CR Rel-16 36.300 16.5.0 1338 1 F 5G\_V2X\_NRSL-Core R2-2104107

* Agreed.

R2-2105770 Handling of new features and NBC changes in sidelink Ericsson discussion Rel-16 5G\_V2X\_NRSL-Core

Proposal 1 RAN2 to confirm that new features and enhancements for Rel-16 NR V2X (that are not fixing problems in current specifications) shall not be treated online and/or offline during the Rel-16 maintenance phase.

Proposal 2 New features and enhancements for Rel-16 NR V2X can be submitted and addressed under the TEI WI, if suitable.

* Proposal 1 and 2 are agreed.

### 6.2.2 Control plane corrections

Including control plane in-principle agreed CRs from RAN2#113bis-e. This agenda item may utilize a summary document on RRC (Huawei).

[In-principle agreed CRs]

R2-2105585 Correction on TS 38.331 from the latest RAN1 decisions Huawei, HiSilicon CR Rel-16 38.331 16.4.1 2552 2 F 5G\_V2X\_NRSL-Core R2-2104461

[ZTE]: There is other CR to cover missing description (R2-2105082). How to handle that correction? [Huawei]: R2-2105585 can be updated to merge it if the description is agreed.

* Add the following description proposed in R2-2105082.

“SL-CBR-PriorityTxConfigList-v16xy

If included, NR shall include the same number of entries, and listed in the same order, as in SL-CBR-PriorityTxConfigList-r16.”

* Agreed in R2-2106611 with the addition above.

R2-2105589 Miscellaneous corrections on TS 38.331 for NR V2X Huawei, HiSilicon CR Rel-16 38.331 16.4.1 2551 2 F 5G\_V2X\_NRSL-Core R2-2104464

[Huawei]: Reference was corrected in 6.3.5 compared to in-principle agreed CR.

* Endorsed and will be further updated to merge other corrections in R2-2104830, R2-2105301, R2-2105590 and R2-2105298.

R2-2105588 Miscellaneous corrections on TS 36.331 for NR V2X Huawei, HiSilicon CR Rel-16 36.331 16.4.0 4631 2 F 5G\_V2X\_NRSL-Core R2-2104465

* Endorsed and will be further updated to merge other corrections in R2-2105591.
* [AT114-e][701][V2X/SL] Update of miscellaneous corrections (Huawei)

 **Scope:** Discuss other corrections in R2-2104830, R2-2105301, R2-2105590, R2-2105298 and R2-2105591. Merge the agreeable corrections with R2-2105589 and R2-2105588.

 **Intended outcome:** Agreeable 38.331 CR in R2-2106612 and 36.331 CR in R2-2106613. If needed, the discussion summary in R2-2106614. CRs will be approved by email.

 **Deadline:** May 27 1000 UTC

R2-2105520 Addition of total L2 buffer size and RLC RTT for NR SL in TS 38.306 Huawei, HiSilicon CR Rel-16 38.306 16.4.0 0547 1 F 5G\_V2X\_NRSL-Core R2-2103172

[Huawei]: Category was only changed from B to F compared to in-principle agreed CR.

* Agreed.

R2-2104840 Correction on V2X UE capability OPPO CR Rel-16 38.306 16.4.0 0543 2 F 5G\_V2X\_NRSL-Core R2-2104460

* Agreed.

R2-2105043 38331 CR on correction of SL configured grant OPPO CR Rel-16 38.331 16.4.1 2477 1 F 5G\_V2X\_NRSL-Core R2-2102732

[OPPO]: Wording “associated” was added compared to in-principle agreed CR.

* Agreed.

R2-2106636 Summary of CP corrections in AI 6.2.2 Huawei, HiSilicon discussion Rel-16 5G\_V2X\_NRSL-Core

Recommendation 1: Further discuss the contributions/CRs listed in Table 1 in the Rapporteur’s miscellaneous correction CR(s) offline discussion, by taking into account Rapporteur’s recommendations in Table 1.

Recommendation 2: RAN2 discusses the potential changes to SL-SRB1 security related issues base on the contributions in Table 2.

Recommendation 3: RAN2 agrees the CR in R2-2105643.

Recommendation 4: RAN2 agrees one of the CRs in Table 4 to apply the conclusion in RAN1 incoming LS R1-2104063 in TS 38.331.

Recommendation 5: RAN2 further discusses the issue identified and the change proposed in R2-2105349.

Recommendation 6: Revise the in-principle agreed CR in R2-2105585 to include the change proposed in R2-2105082.

Recommendation7: The CR in R2-2105913 is not pursued.

* Recommendations were indicated in the corresponding discussion.

[CRs that can be merged into in-principle agreed CRs]

R2-2105082 Discussion on MCS table configuration ZTE Corporation, Sanechips discussion Rel-16 5G\_V2X\_NRSL-Core

* Proposed change is agreeable and it will be merged into R2-2105585.

R2-2104830 Left issue on sync configuration OPPO discussion Rel-16 5G\_V2X\_NRSL-Core

* Treated in email discussion [AT114-e][701][V2X/SL]

R2-2105301 Miscellaneous corrections on TS38.331 CATT CR Rel-16 38.331 16.4.1 2612 - F 5G\_V2X\_NRSL-Core

* Treated in email discussion [AT114-e][701][V2X/SL]

R2-2105590 Miscellaneous corrections on TS 38.331 for NR V2X (Rapporteur CR) Huawei, HiSilicon CR Rel-16 38.331 16.4.1 2631 - F 5G\_V2X\_NRSL-Core

* Treated in email discussion [AT114-e][701][V2X/SL]

R2-2105591 Miscellaneous corrections on TS 36.331 for NR V2X (Rapporteur CR) Huawei, HiSilicon CR Rel-16 36.331 16.4.0 4662 - F 5G\_V2X\_NRSL-Core

* Treated in email discussion [AT114-e][701][V2X/SL]

[CRs for SL-SRB1 security issues]

R2-2105346 Discussion on SL-SRB1 integrity check failure handling vivo discussion

Proposal 1 RAN2 to discuss which option is agreeable on SL-SRB1 integrity check failure handling during re-keying procedure:

⁻ Option 1: Handled by PC5 RRC. E.g., similar to PC5 RLF like other SL-SRB2 and SL-SRB3.

⁻ Option 2: Handled by upper layer.

[OPPO]: There is no need of PC5-RRC connection release in the case. There is a timer to re-initiate the procedure in CT1. [ZTE]: Indication should be provided to the upper layer rather than declaring SL RLF. [Ericsson]: The UE should stop the transmission and it needs to be specified in AS. [Qualcomm]: It is the procedure before PC5-RRC establishment, so PC5 RLF is not needed. [LG]: We already defined SL RLF in SL-SRB2 case where integrity protection check is failed. Consider the concerned case is similar situation as SL-SRB2. Option1 is preferred. [Intel]: Option1 is preferred. [Apple]: Option2 is preferred. [Session Chair]: It would be good to check CT1 status. If OPPO’s comment is correct, it seems PC5-RRC connection release is not required. Instead, AS should indicate it to the upper layer. [OPPO, MediaTek, Huawei]: Agree with session chair. Also if we need to send LS to SA3/CT1, it should just inform our decision (no further open questions).

* AS indicates it to the upper layer and the upper layer will handle it (if a timer to re-initiate the procedure is defined in CT1 specification).
* [AT114-e][702][V2X/SL] SL-SRB1 integrity check failure handling (Vivo)

 **Scope:** Check CT1 specification and decide AS behaviour

 **Intended outcome:** Agreeable 38.331 CR in R2-2106615 and discussion summary in R2-2106616 if needed.

 **Deadline:** Comeback in Wed. CB session (May 26)

Proposal 2 If Option 1 is agreed, adopt the CR in [3].

Proposal 3 If Option 2 is agreed, send LS to SA3 to check which of the following is the correct understanding on SL-SRB1 integrity check failure handling in [4].

⁻ Keep current PC5-S link and fallback to use old security keys.

⁻ Release current PC5-S link and establish new security keys.

R2-2105347 CR on SL-SRB1 integrity check failure handling vivo CR Rel-16 38.331 16.4.1 2618 - F 5G\_V2X\_NRSL-Core

R2-2105348 Draft LS on SL-SRB1 integrity check failure handling vivo LS out To:SA3 Cc:CT1

R2-2105298 Correction on security handling for SL-SRB1 CATT CR Rel-16 38.331 16.4.1 2610 - F 5G\_V2X\_NRSL-Core

[Ericsson]: Intention seems ok, but it will be good to have simple change. [MediaTek]: We need detailed clarification for more accuracy (like the CR). [Apple, QC]: The first change is not needed. [Session chair]: Seems intention is ok, and companies raised more wording suggestions. Propose to handle wording issues as part of [AT114-e][701][V2X/SL]

* Treated in email discussion [AT114-e][701][V2X/SL]

[CRs on the note addition for CG during HO]

R2-2105643 Correction of Sidelink Configured Grant Type 1 Usage During Handover Nokia, Nokia Shanghai Bell, Samsung Electronics CR Rel-16 38.331 16.4.1 2636 - F 5G\_V2X\_NRSL-Core

[OPPO]: There is misalignment between two notes. The first existing note has “should” while new note does not have “should”. It is good to remove “should” also in the first note. [Huawei, Intel]: Agree with OPPO. [Ericsson]: It is good to clarify the case in more accurate, e.g. adding RRC reconfiguration with sync and T304 for MCG for the concerned HO case. [Nokia]: For the need of “should”, we already discussed it last meeting and most companies preferred the note without “should”. [ZTE, LG]: Support Ericsson’s suggestion

* Remove “should” in the first note.
* Add the clarification on RRC reconfiguration with sync
* Add the clarification on T304 for MCG
* Comeback with the revised CR in R2-2106617 (Wed CB session, 5/26)

R2-2105772 Handling of sidelink configured grant during handover Ericsson CR Rel-16 38.331 16.4.1 2648 - F 5G\_V2X\_NRSL-Core

* Covered by R2-2105643.

[CRs related to RAN1 LS in R2-2104711]

R2-2105771 Configuration of search spaces for scheduling SL transmissions Ericsson CR Rel-16 38.331 16.4.1 2647 - F 5G\_V2X\_NRSL-Core

[Vivo]: Other RAN1 agreement was missed in this CR. [Ericsson]: RAN1 did not ask RAN2 action on that agreement in the LS. [OPPO]: Agrees with Ericsson. [Apple]: It is good to add clause number in addition to reference spec number. [ZTE, CATT]: It is good to remove the duplicated sentence “instead to indicate whether the UE monitors in this USS for DCI formats 0-0 and 1-0 or for formats 0-1 and 1-1 or for format 3-0 or for format 3-1 or for formats 3-0 and 3-1”

* Remove “instead to indicate whether the UE monitors in this USS for DCI formats 0-0 and 1-0 or for formats 0-1 and 1-1 or for format 3-0 or for format 3-1 or for formats 3-0 and 3-1”.
* Agreed in R2-2106618 with the removal above.

R2-2105592 Clarification on dci-FormatsSL Huawei, HiSilicon CR Rel-16 38.331 16.4.1 2632 - F 5G\_V2X\_NRSL-Core

* Covered by R2-2105771.

R2-2105081 Correction on TS 38.331 from the latest RAN1 decisions ZTE Corporation, Sanechips CR Rel-16 38.331 16.4.1 2597 - F 5G\_V2X\_NRSL-Core

* Covered by R2-2105771.

R2-2105300 Correction on SS config for scheduling SL CATT CR Rel-16 38.331 16.4.1 2611 - F 5G\_V2X\_NRSL-Core

* Covered by R2-2105771.

[Others]

R2-2105349 Clarification on priority of LTE PSSS SSSS PSBCH vivo CR Rel-16 36.331 16.4.0 4659 - F 5G\_V2X\_NRSL-Core

[Huawei]: Consider the issue is valid, but wonder if there is other option (e.g. leaving it to UE implementation) instead of ASN.1 change. [OPPO]: Agree with Huawei. Wonders if the issue is also applied for OOC case? [Vivo]: Yes, we have same issue for OOC case. [Ericsson, CATT, QC, Nokia]: Leaving it to UE implementation is preferred. [OPPO]: It is good to introduce new signalling as proposed in the CR to solve the issue clearly. [Huawei]: It is to compare the priorities between LTE V2X and NR SL, so the impact on Uu is not concerned. If we really need to introduce new signalling, it should be introduced in ASN.1 BC manner. [LG]: Support the CR with the addition for OOC also. [Vivo]: Do we need any note even if we leave it to UE implementation? [Ericsson]: Agree that we need some note.

* Leave it to UE implementation for idle/inactive and OOC UEs.
* Update the CR to have some note for the agreement above.
* Comeback with the revised CR in R2-2106619 (Wed CB session, 5/26).

R2-2105913 Correction on sidelink configuration ZTE Corporation, Sanechips CR Rel-16 38.331 16.4.1 2651 - F 5G\_V2X\_NRSL-Core

[Huawei]: Change is not essential correction. Note PC5-RRC connection is the term we have used in AS. [Ericsson]: Agree with Huawei.

* Not pursued.

### 6.2.3 User plane corrections

Including user plane in-principle agreed CRs from RAN2#113bis-e. This agenda item may utilize a summary document on MAC (LG).

[In-principle agreed CRs]

R2-2105586 Corrections on MCS selection Huawei, HiSilicon CR Rel-16 38.321 16.4.0 1095 2 F 5G\_V2X\_NRSL-Core R2-2104462

* Agreed

R2-2105497 Correction of PQFI terminology in SDAP Ericsson CR Rel-16 37.324 16.2.0 0020 2 F 5G\_V2X\_NRSL-Core R2-2104542

* Agreed.

R2-2106638 Miscellaneous MAC corrections LG Electronics Inc. CR Rel-16 38.321 16.4.0 1096 1 F 5G\_V2X\_NRSL-Core

[QC]: Do not see the need of the first change. Anything is broken with the current specification?

* Remove the first change.
* Agreed in R2-2106620 with the removal above.

R2-2105042 38321CR on correction of SL configured grant OPPO CR Rel-16 38.321 16.4.0 1065 1 F 5G\_V2X\_NRSL-Core R2-2102731

[OPPO]: Wording “associated” was added compared to in-principle agreed CR.

* Agreed.

R2-2106490 Correction on TS 38.321 for mode 2 UE performing re-evaluation check OPPO CR Rel-16 38.321 16.4.0 1074 1 F 5G\_V2X\_NRSL-Core R2-2102995

[LG]: Should we have some re-wording rather than copying RAN1 sentence? [OPPO]: RAN1 sentence is most accurate wording at the moment. [Apple]: “,” should be in revision also “resource” should be changed into “resources”

* “,” should be in revision.
* “resource” should be changed into “resources”
* Agreed in R2-2106621 with the changes above

R2-2106213 Review Report on MAC CRs in AI 6.2.3 LG Electronics Inc. discussion Rel-16 5G\_V2X\_NRSL-Core Late

Recommendation 1 The CRs in R2-2106490 can be agreed.

Recommendation 2: Discuss R2-2105042, R2-2105599 and R2-2105080 during on-line sessions.

Recommendation 3: The CRs in R2-2104833 and R2-2104834 are not pursued.

Recommendation 4: The CRs in R2-2105126, R2-2105276 and R2-2105633 are not pursued.

* Recommendations were indicated in the corresponding discussion.

R2-2105599 Clarification on setting the cast type indicator Huawei, HiSilicon CR Rel-16 38.321 16.4.0 1105 - F 5G\_V2X\_NRSL-Core

[ZTE]: We do not see the real need of the CR. [OPPO]: Agree with ZTE. It can be solved by UE implementation. [QC, LG, Intel]: Agree with ZTE and OPPO.

* Noted.

R2-2105080 Correction on SR procedur for sidelink BSR ZTE Corporation, Sanechips CR Rel-16 38.321 16.4.0 1102 - F 5G\_V2X\_NRSL-Core

* Agreed.

R2-2104833 Correction on UL-SL prioritization OPPO, Apple CR Rel-16 38.321 16.4.0 1097 - F 5G\_V2X\_NRSL-Core

[LG]: Nothing is broken with the current specification so it is not needed. [QC]: Agree with LG

* Noted.

R2-2104834 Correction on UL-SL prioritization OPPO, Apple CR Rel-16 36.321 16.4.0 1523 - F 5G\_V2X\_NRSL-Core

* Noted.

R2-2105126 Correction on the usage of sl-ReselectAfter Apple, OPPO, Huawei, HiSilicon, Qualcomm Incorporated CR Rel-16 38.321 16.4.0 1103 - F 5G\_V2X\_NRSL-Core

[LG]: It was already discussed last RAN2 meeting and the conclusion was “Not pursued”. [Vivo]: In LTE V2X, there was no such distinction. [Apple]: For blind retransmission case, no issue. The issue comes when HARQ FB based retransmission is applied. [Session chair]: It was introduced by RAN1, should not it be discussed and decided in RAN1? [Intel]: understand the intention, but it can be left to network implementation or it is also ok to discuss the issue in RAN1. [ZTE, LG]: Consider it is optimization, it is not essential correction. [Apple]: As compromise, we can send LS to RAN1. [CATT]: Agree with sending LS to RAN1.

* LS will be sent to RAN1 to ask RAN1 view.
* Comeback with the approvable LS in R2-2106622 (Apple) (Wed CB session, 5/26).

R2-2105276 Correction on condition of setting the resource reservation interval for mode 2 SHARP Corporation discussion Rel-16 5G\_V2X\_NRSL-Core

[LG]: The current specification is already clear. CR seems not essential correction. [OPPO]: Where we can find out the corresponding part in MAC? [LG]: In the resource reselection section, if the counter value is 0, the UE clears the original grant. [OPPO]: Want to have time to check it.

* Comeback (Wed CB session, 5/26).

R2-2105633 Handling of the retransmission TB without an associated SL process Huawei, HiSilicon CR Rel-16 38.321 16.4.0 1106 - F 5G\_V2X\_NRSL-Core

[Huawei]: Revised note is proposed “If the NDI has not been toggled compared to the value of the previous received transmission corresponding to the Sidelink identification information and the Sidelink process ID of the SCI, and if there is no Sidelink process associated with the Sidelink” identification information and the Sidelink process ID of the SCI, it’s up to UE implementation to handle the corresponding TB.”

[Vivo]: Ok with the revised note. [ZTE]: Note is not needed. The UE knows whether it’s for retransmission or not based on process id and NDI. [Huawei]: The case is where the related process does not exist. [Intel, CATT, Apple]: Ok with the revised note. [OPPO]: Not ok with the revised note. There is no need to allocate the process to handle the TB. [Huawei]: With the revised note, the UE may not allocate the process to handle the TB (e.g. just drop the TB). [Ericsson]: If the process information and NDI information is released/gone, how the UE determine whether it is for retransmission or not. The concerned scenario is not crystal clear, so want to have more time to understand the proposal.

* Comeback (Wed CB session, 5/26).

R2-2104832 Left issue on maxTransNum OPPO discussion Rel-16 5G\_V2X\_NRSL-Core

R2-2105350 Remaining issues on sl-MaxTransNum configuration and UE behaviour vivo discussion

[Session chair]: Issues/proposals in R2-2104832 and R2-2105350 are related to the LS sent to RAN1, it is good to wait for RAN1 response LS before having further discussion.

* Will wait for RAN1 response LS.

R2-2104831 Left issue on PUCCH reporting OPPO discussion Rel-16 5G\_V2X\_NRSL-Core

R2-2105299 Correction on security handling for SL-SRB1 CATT CR Rel-16 38.323 16.3.0 0072 - F 5G\_V2X\_NRSL-Core Withdrawn

## 8.15 NR Sidelink enhancements

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

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

Email max expectation: 3 threads

### 8.15.1 Organizational

Including incoming LSs, rapporteur inputs, etc.

### 8.15.2 SL DRX

Including remaining proposals from [POST113-e][703], [POST113-e][704], [AT113bis-e][706], [AT113bis-e][707], and [AT113bis-e][708].

R2-2104841 Summary of [POST113-e][704] TX UE centric or RX UE centric DRX configuration determination (OPPO) OPPO report Rel-17 NR\_SL\_enh-Core R2-2102889

Proposal 1 [19/21] 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.

[Huawei]: Majority companies supported the need of assistance information regardless of TX-UE or RX-UE centric DRX configuration, so FFS seems not needed. [Xiaomi]: Agree with Huawei. [ZTE, Apple]: Agree to remove FFS now and we can rediscuss it later once we decide whether TX-UE or RX-UE centric DRX configuration is applied.

* Agreed.

Proposal 2 [16/21] In SL unicast, for DRX configuration of each direction where one UE as Tx-UE and the other as Rx-UE, signaling-1 (Rx->Tx) is carried via a new PC5-RRC message, from Rx-UE to Tx-UE.

Proposal 3 [16/21] In SL unicast, for DRX configuration of the direction where one UE as Tx-UE and the other as Rx-UE, signaling-2 (Tx->Rx) is carried via RRCReconfigurationSidelink, to deliver DRX configuration from Tx-UE to Rx-UE.

[Session chair]: With the proposal 2 and proposal 3, do they propose TX-UE centric DRX configuration in the end (due to “to deliver DRX configuration from TX-UE to RX-UE” in proposal 3)? [OPPO, Vivo]: Yes, share same understanding with session chair. [LG]: With TX-UE centric DRX configuration, how TX-UE knows whether RX-UE wants DRX operation or not. [Nokia]: We should first decide whether TX-UE or RX-UE centric DRX configuration before agreeing the proposal 2 and proposal 3. [Huawei, Apple]: Email discussion was not crystal clear enough to determine TX-UE or RX-UE centric DRX configuration since it focused the signaling aspect more. [Session chair]: Suggest to check companeis’ positions online then.

* TX-UE centric DRX configuration based on the assistance information from RX-UE
	+ Ericsson, OPPO, Xiaomi, Lenovo, Intel, Convida, Vivo, Fraunhofer, CATT, Spreadtrum, QC, Samsung, MediaTek (13)
* RX-UE centric DRX configuration based on the assistance information from TX-UE
	+ InterDigital, AsusTek, LG, Apple, ZTE, Huawei, Nokia (7)

[LG]: Should make sure TX-UE takes the assistance information into account as much as possible in DRX configuration. We may need some restriction/rule for it. [OPPO]: Network may also need to be involved in the determination of DRX configuration. We first need to see overall pictures before discussion on the need of any restriction/rule. [Vivo]: To soften the concern from the companies supporting RX-UE centric DRX configuration, we may consider RX-UE’s reject procedure. [Apple, Huawei]: We may consider both options?

* For unicast, TX-UE centric DRX configuration based on the assistance information from RX-UE is agreed as baseline.
* Proposal 2 and proposal 3 are agreed.

Proposal 4 [11/21] 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 OOC, RAN2 discuss whether Tx-UE decides the DRX configuration in signalling-2 (Tx->Rx) with or without relying on pre-configuration.

[ZTE]: What pre-configuration really means here? Resource pool configuration or DRX timer related configuration? [Ericsson]: It should be DRX related configuration. [OPPO]: We can skip the discussion right now. Also note there is no clear majority companies’ views.

* Skipped the discussion.

Proposal 5 [18/21] 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.

[LG]: What is the exact information or purpose? Is it to request DRX configuration? [OPPO]: It is for the network to control the DRX configuration or to take it into accout in the mode1 scheduling. [LG]: If it is more DRX alignment purpose, it seems not needed as mandatory. [Huawei]: If it is to request DRX configuration, we did not make a decision yet whether the TX UE itself or network will decide final DRX configuration. [OPPO]: It is related to proposal 7 then we can discuss proposal 7 first.

* Agreed.

Proposal 6 [16/21] In SL unicast, for DRX configuration of the direction where one UE as Tx-UE and the other as Rx-UE, when Tx-UE is in-coverage and in RRC\_IDLE/RRC\_INACTIVE state, Tx-UE obtain DRX configuration from SIB to generate signalling-2 (Tx->Rx).

[Xiaomi]: Understand resource pool configuration (not DRX configuration) is obtained from SIB. [ZTE, Apple, InterDigital]: Proposal 6 is similar to proposal 4, so we need to further discuss it later together.

* Skipped the discussion.

Proposal 7 [17/21] In SL unicast, for DRX configuration of each direction where one UE as Tx-UE and the other as Rx-UE, when Tx-UE is in-coverage and in RRC\_CONNECTED state, Tx-UE may obtain DRX configuration from dedicated RRC to generate signalling-2 (Tx->Rx).

[Xiaomi, Vivo, Ericsson, CATT, Nokia, Qualcomm]: Support the proposal for mode1 scheduling and DL/SL DRX coordination. It is also aligned with Rel-16 SL principle, i.e. for RRC connected UE, configuration is provided by dedicated RRC. [Apple]: What about mode 2 case? [Qualcomm]: For mode 2, do not see the real need since gNB does not need to be aware of all PC5 connections for mode 2 operation. [InterDigital]: Agree with no need of it for mode 2. [Xiaomi]: See the need of it even for mode 2. [LG]: How to handle if TX-UE is in idle/inactive? [OPPO]: Proposal 6 covers it.

* Agreed.

Proposal 8 [20/21] 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.

* Agreed.

R2-2106202 Remaining issues in which UE decides sidelink DRX configurations LGE, InterDigital, Huawei, ASUSTeK, Apple discussion Rel-17

[Lenovo]: Definition of TX-UE or RX-UE centric DRX configuration seems not clear. Both UEs can have data. [OPPO]: DRX configuration is per direction per unicast. [Intel]: On the question raised in R2-2104841 (how TX-UE knows whether RX-UE wants DRX operation or not), assume RX-UE indicates whether DRX operation is preferred (whether it is VRU). [Ericsson, Intel]: In the email discussion, pros and cons were already shown and TX-UE centric DRX configuration was supported as majority companies’ views. We do not need to re-discuss it from the scratch now.

R2-2104835 Discussion on DRX configuration and DRX timers OPPO discussion Rel-17 NR\_SL\_enh-Core

[Session chair]: Skipped the presentation assuming it was already discussed in the email discussion.

R2-2104752 [AT113bis-e][707][V2X/SL] Uu DRX Impact to Support SL CATT discussion Rel-17 NR\_SL\_enh-Core

[Easy agreements]:

Proposal 1[18/18]: SL-specific drx-onDurationTimer is not introduced in Uu.

Proposal 2[17/18]: SL-specific drx-InactivityTimer is not introduced in Uu.

Proposal 3[18/18]: For Tx UE configured with sidelink resource allocation mode 1, it should start or restart the Uu drx-InactivityTimer if the UE receives a PDCCH indicating a new SL transmission.

Proposal 4[18/18]: SL-specific drx-HARQ-RTT-Timer and SL-specific drx-RetransmissionTimer should be introduced in Uu, which are maintained based on sidelink process.

Proposal 5 [16/18]: When sl-PUCCH-Config is configured, SL-specific drx-HARQ-RTT-Timer and SL-specific drx-RetransmissionTimer should be maintained for UE configured with sidelink resource allocation mode 1.

Proposal 7 [18/18]: Adopt the following definitions of SL-specific drx-HARQ-RTT-Timer and drx-RetransmissionTimer (the detailed name of the timers can be further discussed):

- drx-RetransmissionTimerSL (per Sidelink process): the maximum duration until a grant for SL retransmission is received;

- drx-HARQ-RTT-TimerSL (per Sidelink process): the minimum duration before a SL retransmission grant is expected by the MAC entity.

Proposal 8[15/18]: When 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.

[Huawe]: If PUCCH is not prioritized, there’ll be no PUCCH. We need to consider this case in separate also. [ZTE]: Do we need to consider the case SL HARQ feedback is sent in PUSCH? [CATT]: We did not discuss this case due to lack of time, if needed, we can have further discussion. [Qualcomm, Lenovo]: RAN1 concluded no SL HARQ feedback in PUSCH.

* Proposal 1 to proposal 8 are agreed.

Proposal 10[18/18]: In Uu, the SL-specific drx-RetransmissionTimer should be stopped accompany with the start of the SL-specific drx-HARQ-RTT-Timer corresponding to the same sidelink process (as Uu DRX).

[Vivo, Xiaomi]: Proposal 10 is not crystal clear, it would be better not to agree with it now.

[Need discussion]:

Proposal 6: when sl-PUCCH-Config is not configured, RAN2 should further discuss whether SL-specific drx-HARQ-RTT-Timer and SL-specific drx-RetransmissionTimer should be maintained.

Proposal 9: When sl-PUCCH-Config is configured, if the retransmission of the corresponding sidelink process is necessary, 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. RAN2 should further discuss on how to judge whether the retransmission of the corresponding sidelink process is necessary, based on PSFCH feedback or not.

Proposal 11: RAN2 can further discuss how to define the name of the SL-specific drx-HARQ-RTT-Timer and SL-specific drx-RetransmissionTimer in Uu.

[Session chair]: We may comeback proposal 6 to 11 once we handled all easy agreements.

R2-2105912 [AT113bis-e][708][V2X/SL] DRX configuration for SL CG and BG ZTE discussion Rel-17 NR\_SL\_enh-Core R2-2104474

[EASY] WA: RAN2 assumes that the V2X layer of Rx UE passes the PC5 QoS parameters together with the corresponding destination layer-2 ID(s) for reception to the AS layer, as per TR 23.776 conclusion, and will further discuss SL DRX design based on this working assumption. RAN2 does not need to send LS to SA2 to clarify this issue.

* Agreed.

[EASY]Proposal 1-1:[16/20]For GC/BC, RAN2 understands that DRX cycle should take at least QoS requirement into consideration.

[Ericsson]: Consider traffic pattern/type should be enough. Note QoS includes many attributes. Understand there is no specification impact at all with proposal 1-1. [Huawei, Lenovo, Apple]: QoS should be considered as the baseline and in addition, traffic pattern should be also considered. [Ericsson]: Understand traffic pattern/type is associated with set of QoS, so traffic pattern/type already considered QoS aspect. [InterDigital]: Support the proposal considering QoS includes delay requirement. [OPPO]: QoS should be considered and there will be some specification impact, e.g. DRX configuration per QoS.

* Agreed.

[EASY]Proposal 1-3:[15/20] For GC/BC, DRX cycle(s) is configured per QoS profile. FFS on the need of down-select one DRX cycle from available DRX cycles for a specific L2 DST ID if UE has multiple QoS profiles for same DST L2 ID.

[InterDigital]: It is not clear how it can leave it to UE implementation. [OPPO, LG, Lenovo]: Agree with InterDigital, but see no real need of down-selection now.

* Agreed.

DRX cycle configuration:

Observation 1-2:[15/20]For GC/BC, RAN2 understands that per DST L2 ID DRX cycle configuration can not ensure the QoS requirement.

Proposal 1-5:[14/20] For GC/BC, DRX cycle is configured per QoS profile.

* Proposal 1-5 is agreed.

DRX startoffset cofiguration:

Proposal 2-1:[13/20] For GC/BC, RAN2 understands that sl-drx-startoffset does not take QoS requirement into consideration.

Proposal 2-2:[13/20]For GC/BC, For GC/BC, sl-drx-startoffset is set based on DST L2 ID.

[OPPO]: Ok with the removal of FFS sentence. [Apple]: With this proposal, UEs may wake-up in the different time if the UE has multiple different L2 DST id, which is not good for power saving. [IDT]: In fact, it is not possible to schedule all UEs at the same time, so the distribution of set of UEs in the time domain makes sense.

* Proposal 2-1 and 2-2 are agreed.

R2-2105495 summary offline 706 Ericsson report Rel-17 NR\_SL\_enh-Core R2-2104472

Easy Proposals for Block Approval

Proposal 1 [Easy][16/20] Alignment of Uu DRX and SL DRX for UE may comprise the full overlapping between Uu DRX and SL DRX in time. FFS on spec impacts.

Proposal 2 [Easy][16/20] Alignment of Uu DRX and SL DRX for UE may comprise the partial overlapping between Uu DRX and SL DRX in time. FFS on spec impacts.

Proposal 3 [Easy][16/20] Alignment of Uu DRX and SL DRX for UE may comprise the non overlapping between Uu DRX and SL DRX in time (i.e., UE with single RF chain) if single RF chain scenario is supported. FFS on spec impacts.

Proposal 5 [Easy][20/21] For UEs in RRC CONNECTED, the alignment of Uu DRX and SL DRX is up to gNB, e.g., gNB provides proper DRX configuration and SL DRX configuration to achieve alignment.

Proposals for Online discussion

Proposal 4 [For discussion][14/21] RAN2 to down-scope alignment of Uu DRX and SL DRX for UEs in RRC IDLE and RRC INACTIVE from Rel-17.

Proposal 7 [For discussion][14/21] In case of Mode 1 scheduling, the alignment of Uu DRX of Tx UE and SL DRX of Rx UE shall be considered. FFS on how alignment is achieved.

Proposals of Low priority

Proposal 6 [For discussion][7/21] For UEs in RRC CONNECTED, in order to achieve alignment of Uu DRX and SL DRX, RAN2 further discusses if UE based option is also supported, e.g., UE adjusts SL DRX according to Uu DRX or UE determines SL DRX and reports to gNB.

R2-2104865 Revised Summary of [POST113-e][703][V2X/SL] Details of Timer (InterDigital) InterDigital discussion Rel-17 NR\_SL\_enh-Core

Proposal 13 (Revised) – For unicast, RAN2 further discuss the need for using HARQ feedback at the TX UE for synchronizing the inactivity timer at the TX UE with the RX UE. RAN2 limit discussion to the following options:

A) HARQ feedback (or lack thereof) is used to stop the inactivity timer at the TX UE

B) HARQ feedback (or lack thereof) is used to restart the inactivity timer at the TX UE

C) HARQ feedback (or lack thereof) is not used in the maintenance of the inactivity timer at the TX UE.

Proposal 14b – [13/17] For unicast, RAN2 discusses whether the TX UE (re)starts the timer following an SCI transmission to the RX UE indicating a retransmission.

Proposal 17 (Revised) – The RX UE MAC maintains a separate SL Inactivity timer for each groupcast L2 destination ID, when SL inactivity timer is supported for the scenario.

Proposal 23 [12/13] If SL HARQ RTT timer is supported for HARQ disabled transmissions, the RX UE starts the SL HARQ RTT timer in the symbol/slot following SCI (SCI1+SCI2) reception. FFS whether this applies to all SCI transmissions.

Proposal 27 [15/21] For cases where there is no uncertainty in the timing of a retransmission for a HARQ process the RX UE uses a retransmission timer. FFS on how to set the retransmission timer (e.g. predefined or configured) and when it is started

Proposal 30 – [15/21] SL HARQ RTT timer and SL Retransmission timer are not used for broadcast transmissions. RAN2 discusses how to handle retransmissions at the TX UE for broadcast in this case.

Proposal 32 (Revised) – [14/21] The SL active time of the RX UE includes the slots associated with announced periodic transmissions by the TX UE (as per SCI)

R2-2104836 Left issues on SL DRX RTT timer OPPO, Intel, Xiaomi communications discussion Rel-17 NR\_SL\_enh-Core

R2-2105733 Geolocation for Sidelink DRX Nokia, Nokia Shanghai Bell, Fujitsu, Fraunhofer IIS, Fraunhofer HHI discussion Rel-17 NR\_SL\_enh-Core R2-2103468

R2-2105277 Discussion on co-existence with UEs not supporting SL DRX SHARP Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2104750 Leftover Issues on DRX for Sidelink Unicast CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2104751 DRX Design for Sidelink Groupcast and Broadcast CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2104769 Discussion on network involvement for SL related DRX OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2104866 Open Issues on SL DRX InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2104867 On TX Centric vs RX Centric Approaches for DRX Configuration Determination InterDigital, Apple, Huawei discussion Rel-17 NR\_SL\_enh-Core

R2-2105023 Further discussion on SL DRX operation Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2105024 On DRX wake-up time alignment Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2105073 DRX Configuration for UC BC GC and its interaction with Sensing Lenovo, Motorola Mobility discussion NR\_SL\_enh-Core

R2-2105077 Discussion on SL DRX configuration ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2105078 Discussion on SL DRX timer ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2105083 Consideration on the sidelink DRX for unicast Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2105131 Discussion on RX-centric and Tx-centric in SL unicast DRX Apple, InterDigtal Inc. discussion Rel-17 NR\_SL\_enh-Core

R2-2105132 Discussion on remaining issues of SL DRX Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2105248 NR SL DRX Fraunhofer IIS, Fraunhofer HHI discussion Rel-17

R2-2105278 Discussion on SL DRX inactivity timer SHARP Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2105297 Further discussion on Sidelink DRX LG Electronics France discussion NR\_SL\_enh-Core

R2-2105351 SL DRX Configuration Impact on RAN1 and RAN2 vivo discussion

R2-2105352 Left issues on SL DRX vivo discussion

R2-2105385 Discussion on active time regarding Sidelink DRX ASUSTeK discussion Rel-17 NR\_SL\_enh-Core

R2-2105400 Discussion on HARQ RTT and Retransmission Timer for SL DRX Fujitsu discussion Rel-17 NR\_SL\_enh-Core R2-2103287

R2-2105401 Alignment of sidelink DRX active time Fujitsu discussion Rel-17 NR\_SL\_enh-Core R2-2103288

R2-2105458 Coordination between Uu DRX and SL DRX Lenovo, Motorola Mobility discussion Rel-17 NR\_SL\_enh-Core

R2-2105480 Discussion on sidelink DRX configuration Xiaomi communications discussion

R2-2105484 DRX alignment between TX and RX UE Xiaomi communications discussion

R2-2105493 Remaining aspects of SL DRX Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2105532 Remaining issues on DRX Timers for SL Spreadtrum Communications discussion Rel-17 NR\_SL\_enh-Core

R2-2105553 Consideration on sidelink DRX for broadcast and groupcast Huawei, HiSilicon discussion Rel-17

R2-2105593 Discussion on SL communication impact on Uu DRX Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2105707 Proposals for Sidelink DRX Sony discussion Rel-17 NR\_SL\_enh-Core

R2-2105902 Discussion on Directional SL DRX for Unicast Qualcomm Finland RFFE Oy discussion

R2-2105904 Discussion on SL DRX configuration for Groupcast & Broadcast Qualcomm Finland RFFE Oy discussion

R2-2105906 Discussion on SL DRX Timers and Others Qualcomm Finland RFFE Oy discussion

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

R2-2106056 On the deciding entity of SL DRX configuration Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_enh-Core R2-2103305

R2-2106073 Coordination between DL DRX and SL DRX Samsung Research America discussion

R2-2106074 SL DRX operation for groupcast/broadcast Samsung Research America discussion

R2-2106172 SL DRX enabled UE Mode 2 operation ITL discussion Rel-17

R2-2106204 Consideration on SL DRX operation LG Electronics Inc. discussion Rel-17

R2-2106363 SL DRX Granularity Considerations Convida Wireless discussion Rel-17

R2-2106364 SL DRX Configuration: TX Centric or RX Centric Convida Wireless discussion Rel-17

R2-2106438 On detailed SL DRX model MediaTek Inc. discussion Rel-17 NR\_SL\_enh-Core

R2-2106439 On SL DRX timer operation MediaTek Inc. discussion Rel-17 NR\_SL\_enh-Core

### 8.15.3 Resource allocation enhancements RAN2 scope

R2-2104868 Resource Allocation for eSL InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2105079 Discussion on inter-UE coordination ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2105133 Discussion on resource allocation enhacenmens Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2105353 Discussion on inter-UE coordination for sidelink mode2 vivo discussion

R2-2105402 Dual-mode Configuration and Selection for NR Sidelink Fujitsu discussion Rel-17 NR\_SL\_enh-Core R2-2103289

R2-2105467 Power efficient resource allocation and Inter-UE coordination LG Electronics France discussion NR\_SL\_enh-Core

R2-2105485 Resource allocation enhancement impact in RAN2 Xiaomi communications discussion

R2-2105499 Inter-UE Coordination for Sidelink Mode 2 Resource Allocation Fraunhofer IIS, Fraunhofer HHI discussion Rel-17

R2-2105508 Power Reduction for Sidelink Mode 2 Resource Allocation Fraunhofer IIS, Fraunhofer HHI discussion Rel-17

R2-2105538 Discussion on resource allocation enhancement for NR sidelink Spreadtrum Communications discussion Rel-17 NR\_SL\_enh-Core

R2-2105708 Discusison on Sidelink sensing Sony discussion Rel-17 NR\_SL\_enh-Core R2-2103617

R2-2105775 General principles for resource allocation enhacements for SL mode 2 Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2105824 Discussion on sidelink resource allocation enhancements Lenovo, Motorola Mobility discussion Rel-17

R2-2106067 Resource Allocation Enhancements for Reduced Power Consumption and Enhanced Reliability Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2106075 Resource allocation enhancements Samsung Research America discussion

R2-2106358 On Resource Allocation Mode 2 Enhancement for NR Sidelink Convida Wireless discussion Rel-17 R2-2103948

R2-2106440 Transmission of assistance information for Mode 2 enhancement MediaTek Inc. discussion Rel-17 NR\_SL\_enh-Core R2-2103578

### 8.15.4 Other

R2-2104753 Impacts of SL DRX on Other Procedures CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2105494 Interaction between partial sensing and DRX Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2106441 On SL sync search optimization MediaTek Inc. discussion Rel-17 NR\_SL\_enh-Core R2-2103579