3GPP TSG-RAN WG2 Meeting #116bis-e electronic R2-21xxxxx
Online, January 17 – 25, 2022

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.

## 8.15 NR Sidelink enhancements

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

Time budget: 1.5 TU

Tdoc Limitation: 3 tdocs

Email max expectation: 6 threads

### 8.15.1 Organizational

Including incoming LSs, rapporteur inputs, etc.

R2-2200265 Running CR of TS 38.304 for eSL ZTE Corporation, Sanechips draftCR Rel-17 38.304 16.7.0 NR\_SL\_enh-Core

* [POST116bis-e][701][V2X/SL] 38.304 running CR (ZTE)

 **Scope:** Capture 38.304 related agreements (including this meeting)

 **Intended outcome:** Endorse 38.304 running CR in R2-2201801 (by email approval)

**Deadline:** Short email discussion (start from 1/24, end until 1/28 10:00am UTC)

R2-2200482 RRC running CR for NR Sidelink enhancements Huawei, HiSilicon draftCR Rel-17 38.331 16.7.0 F NR\_SL\_enh-Core

* [POST116bis-e][702][V2X/SL] 38.331 running CR (Huawei)

 **Scope:** Capture 38.331 related agreements (including this meeting)

 **Intended outcome:** Endorse 38.331 running CR in R2-2201802 (by email approval)

**Deadline:** Short email discussion (start from 1/24, end until 1/28 10:00am UTC)

R2-2200550 Running CR of TS 38.321 for Sidelink enhancement LG Electronics France draftCR Rel-17 38.321 16.7.0 NR\_SL\_enh-Core

* [POST116bis-e][703][V2X/SL] 38.321 running CR (LG)

 **Scope:** Capture 38.321 related agreements (including this meeting)

 **Intended outcome:** Endorse 38.321 running CR in R2-2201803 (by email approval)

**Deadline:** Short email discussion (start from 1/24, end until 1/28 10:00am UTC)

* [POST116bis-e][708][V2X/SL] 38.300 running CR (InterDigital)

 **Scope:** Capture 38.300 related agreements (including this meeting)

 **Intended outcome:** Endorse 38.300 running CR in R2-2201808 (by email approval)

**Deadline:** Short email discussion (start from 1/24, end until 1/28 10:00am UTC)

### 8.15.2 SL DRX

Including [Post116-e][715], [Post116-e][716], [Post116-e][718], etc.

R2-2200007 Summary of [POST116-e][718][V2X SL] SL DRX configuration (Ericsson) Ericsson discussion

Easy Proposals for Block Approval

Proposal 1 (19/19) For unicast and TX UE in RRC CONNECTED and Mode 1 RA, the serving gNB of TX UE determines the SL DRX configurations for RX UE

Proposal 3 (19/19) For unicast and TX UE in RRC CONNECTD, it is up to TX UE’s gNB implementation to determine alignment between Uu DRX of TX UE and SL DRX of RX UE, i.e., no spec change is foreseen.

Proposal 4 (19/19) For unicast and RX UE in RRC CONNECTED, RX UE uses an existing Uu RRC signalling to report a received SL DRX configuration to the gNB. Which RRC signalling to use will rely on outcome of the email discussion 715.

Proposal 5 (18/19) For unicast and RX UE in RRC CONNECTED, it is up to RX UE to indicate either acceptance or rejection to TX UE for a received SL DRX configuration.

Proposal 9 (19/19) For groupcast or broadcast, it is up to the gNB implementation to provide proper Uu DRX configuration to TX UE or RX UE, i.e., no spec change is foreseen.

* Agreed with proposal 1, 3, 4, 5 and 9

Proposal 2 (16/18) For unicast and TX UE in RRC CONNECTED and Mode 2 RA, same as for Mode 1 scheduling, TX UE’s gNB determines SL DRX for RX UE

[Apple, LG]: There is no technical benefit to align it with mode1 case. Instead it would be better to align it to mode2 in RRC idle/inactive considering the gNB does not have a full picture of resource allocation in mode 2. [Xiaomi, Ericsson]: No real technical benefit, but at the same time no real blocking issue to go towards proposal 2. [OPPO, Huawei]: Considering SL configuration is assigned in dedicated RRC in Rel-16, proposal 2 is ok. [Session chair]: Feel sympathy with Apple and LG’s arguments. Any company changed mind? [Lenovo, ZTE, Nokia, Qualcomm]: Have some sympathy with Apple and LG. [ZTE]: We may consider a compromised solution to allow both. [Session chair]: Let’s finally check companies’ views with Apple and LG’s arguments.

* Option1: to follow mode 1, i.e. TX UE’s serving gNB determines SL DRX for RX UE (Xiaomi, Huawei, Ericsson, OPPO, CATT: 5)
* Option2: to follow mode 2, i.e. TX UE determines SL DRX for RX UE (Lenovo, Nokia, Apple, LGE, Intel, InterDigital, MediaTek, Samsung: 8)
* Option2 is agreed.

Proposals for Online discussion

Proposal 7 (15/19) For groupcast or broadcast, the existing information content in the existing RRC signaling (e.g., SidelinkUEInformationNR) is reused by TX UE if in RRC CONNECTED to report assistance information to the gNB in order to achieve alignment of Uu DRX of TX UE and SL DRX of RX UE. FFS on additional information.

* Agreed.

[Lenovo]: Is proposal 7 applied to both mode1 and mode2? [OPPO]: SUI is sent before NW decides mode1 or mode2 so it has nothing to do with specific mode.

Proposal 8 (modified) For groupcast or broadcast, RX UE in RRC CONNECTED can report destination L2 id and QoS profile associated with its interested services that SL DRX is applied to the gNB in order to achieve alignment of Uu DRX of RX UE and SL DRX of RX UE.

* Agreed.

[Xiaomi, Ericsson, ZTE, Apple, CATT, InterDigital, Huawei]: In Rel-16, interested L2 id and QoS profile is not sent to the gNB for the reception of the interested service. The UE needs to inform that information for the reception of the interested service too (like TX UE side). [LG, OPPO, Nokia, Lenovo]: Do not think the network will align Uu DRX as the result of the service selection. [Session chair]: without any information, do we assume NW will align Uu DRX and SL DRX based on all SL DRX configurations corresponding to all QoS profiles in system information (i.e. based on worst case)? Since proposal 7 is agreed for TX UE, why not applying the same approach (i.e. using the information included in SUI) to RX UE? [OPPO, Nokia]: ok with modified proposal.

Agreement on SL DRX configuration:

1: For unicast and TX UE in RRC CONNECTED and Mode 1 RA, the serving gNB of TX UE determines the SL DRX configurations for RX UE.

2: For unicast and TX UE in RRC CONNECTD, it is up to TX UE’s gNB implementation to determine alignment between Uu DRX of TX UE and SL DRX of RX UE, i.e., no spec change is foreseen.

3: For unicast and RX UE in RRC CONNECTED, RX UE uses an existing Uu RRC signalling to report a received SL DRX configuration to the gNB. Which RRC signalling to use will rely on outcome of the email discussion 715.

4: For unicast and RX UE in RRC CONNECTED, it is up to RX UE to indicate either acceptance or rejection to TX UE for a received SL DRX configuration.

5: For groupcast or broadcast, it is up to the gNB implementation to provide proper Uu DRX configuration to TX UE or RX UE, i.e., no spec change is foreseen.

6: For unicast and TX UE in RRC CONNECTED and Mode 2 RA, TX UE determines SL DRX for RX UE.

7: For groupcast or broadcast, the existing information content in the existing RRC signaling (e.g., SidelinkUEInformationNR) is reused by TX UE if in RRC CONNECTED to report assistance information to the gNB in order to achieve alignment of Uu DRX of TX UE and SL DRX of RX UE. FFS on additional information.

8: For groupcast or broadcast, RX UE in RRC CONNECTED can report L2 id and QoS profile associated with its interested services that SL DRX is applied to the gNB in order to achieve alignment of Uu DRX of RX UE and SL DRX of RX UE.

R2-2200045 Summary of [POST116-e][715][V2X/SL] RRC open issues Huawei, HiSilicon (Rapporteur) discussion

[Proposal 1]: UE uses SUI to report sidelink DRX configuration or sidelink assistance information to its serving gNB. (14/18)

* Agreed.

[OPPO, Huawei]: With UAI, NW can further configure whether reporting SL DRX configuration is required or not. [Ericsson, Intel]: With SUI, it’s up to NW whether to align Uu DRX and SL DRX or not. [Huawei]: Can we postpone the decision? [Ericsson]: No need to revisit this issue and better to make a decision now for progress.

[Proposal 3]: UE reports sidelink assistance information to its serving gNB, upon receiving sidelink DRX assistance information from the peer UE. (16/16)

[Proposal 4]: For IDLE/INACTIVE/OOC UE, It is up to TX UE implementation to set sl-DRX-ConfigUC-PC5. (18/18)

[Proposal 5]: Remove the EN in clause 5.8.9.X.3 of running CR and update the description as “For sidelink unicast, when a UE in IDLE/INACTIVE or OOC has obtained this assistance information from its peer UE, it may derive the values for SL DRX based on UE implementation.” (17/18)

[Proposal 6] Use an extension marker for SL-PHY-MAC-RLC-Config-v17xy. (15/17)

* Agreed with proposal 3, 4, 5, and 6

[Proposal 2]: (modified) UE reports sidelink DRX configuration to its serving gNB, upon accepting sidelink DRX configuration information from the peer UE.

* Agreed.

Agreement on RRC open issues:

1: UE uses SUI to report sidelink DRX configuration or sidelink assistance information to its serving gNB.

2: UE reports sidelink assistance information to its serving gNB, upon receiving sidelink DRX assistance information from the peer UE.

3: For IDLE/INACTIVE/OOC UE, It is up to TX UE implementation to set sl-DRX-ConfigUC-PC5.

4: Remove the EN in clause 5.8.9.X.3 of running CR and update the description as “For sidelink unicast, when a UE in IDLE/INACTIVE or OOC has obtained this assistance information from its peer UE, it may derive the values for SL DRX based on UE implementation.”

5: Use an extension marker for SL-PHY-MAC-RLC-Config-v17xy.

6: UE reports sidelink DRX configuration to its serving gNB, upon accepting sidelink DRX configuration information from the peer UE.

R2-2200051 Summary of [POST116-e][716][SL] MAC open issues LG Electronics Inc. (Rapporteur) discussion

(15/19) Proposal 1: The priority order of Sidelink DRX Command MAC CE is between Sidelink CSI Reporting MAC CE and data from any STCH.

* Agreed.

[Apple, Ericsson]: Proposal1 is made based on the assumption there is no SL data. If there is SL data to transmit, it doesn’t make a sense to handle SL DRX command MAC CE with higher priority than SL data because SL DRX command MAC CE is to command UE to sleep and the SL data can be transmitted only in the next on-duration (concerns with the possible delay). [Vivo]: Most likely SL DRX command MAC CE is generated when there is no SL data. With SL data, the UE still can mux both MAC CE and data most likely. [Huawei]: It was agreed that DRX command MAC CE is set to priority “1”, which means should be higher than SL data. [Apple]: If SL DRX command MAC CE is generated when there is no SL data, there is no real need to define the priority order of SL DRX command MAC CE compared to SL data. [Session chair]: Feel sympathy with Apple and Ericsson’s arguments. Any company changed mind? Seems still majority companies support the proposal 1.

(19/19) Proposal 2: When an Rx UE receives SL DRX command MAC CE from a TX UE, the Rx UE can stop the running onduration timer and inactivity timer associated with a unicast link.

(19/19) Proposal 3: For the same pair of L2 SRC/DST ID, the SL DRX command MAC CE can be transmitted alone or with data in the MAC PDU.

(19/19) Proposal 4: When a MAC PDU carrying only the SL DRX Command MAC CE is transmitted, it is transmitted as a HARQ Feedback disabled MAC PDU.

(19/19) Proposal 5: RAN2 does not define a separate SR configuration for SL DRX Command MAC CE.

* Agreed with proposal 2, 3, 4 and 5

(11/19) Proposal 6 (modified): drx-HARQ-RTT-TimerSL is supported in case PSFCH is configured in resource pool and sl-PUCCH-Config is not configured. NW can set value as zero or any other value.

* Agreed.

[InterDigital, OPPO, LG, Xiaomi, Lenovo, CATT]: HARQ RTT should be support since it is already supported for Uu case. [OPPO]: Since PSFCH is configured, there will be UE power saving gain with HARQ RTT. [Ericsson, Qualcomm]: The gNB can schedule immediately after the previous resource allocation if no PUCCH is configured. In the case, there is no need of HARQ RTT. [Session chair]: With the configured HARQ RTT, can’t we still achieve Ericsson/Qualcomm intention (e.g. HARQ RTT value is configured as “0” or HARQ RTT is optional and not present)? [Huawei]: what about the case PSFCH is not configured and PUCCH is not configured? In this case, it seems clear HARQ RTT is not needed at all. [OPPO]: We need separate discussion on that case.

(19/19) Proposal 7: UE uses configured sl-drx-HARQ-RTT-Timer value when the resource assignment information for the next re-transmission does not exist in the SCI regardless of whether HARQ feedback is enabled or disabled.

* Agreed.

(10/18) Proposal 8: RAN2 should further discuss that when mode 1 SL grant is not in SL active time of any destination that has data to be sent, for initial transmission and the mode 1 grant is dropped, UE sends ACK to gNB.

(9/18) Proposal 9: RAN2 should further discuss that when mode 1 SL grant is not in SL active time of any destination that has data to be sent, for retransmission and the mode 1 grant is dropped, UE sends NACK to gNB.

[Apple, ZTE, Ericsson, CATT]: For proposal 8 and 9, we can have unified solution. Prefer NACK. [Xiaomi]: With NACK, gNB will schedule retransmissions. How to avoid that? [OPPO, Qualcomm, LG, Lenovo, Huawei]: With either ACK or NACK, similar issue will exist. To align with the current MAC behaviour for the case where no MAC PDU is provided, prefer ACK. [Huawei]: For retransmissions, to the current MAC for the case if initial transmission is missed, ACK is sent. [Xiaomi]: If ACK is sent, data loss can happen. New indication to indicate packet dropping due to active time mismatch may be needed. [Session chair]: Let’s see what is the issue for each ACK and NACK, then set WA to the majority companies.

* ACK: i) gNB may schedule new transmissions, ii) gNB may restart inactivity timer (making the timer synchronization worse), iii) gNB may have wrong SL-BSR status which makes the UE resend the corrected BSR (Note argument from companies supporting ACK is that anyway gNB cannot have accurate SL BSR status regardless of this issue)
* NACK: i) gNB may schedule retransmissions and following new transmission, ii) it is not aligned with Rel-16 MAC specification (for the case where MAC PDU is not provided), iii) it can bring the additional issue due to not toggling the New Data Indicator (especially for DG).
* Both ACK and NACK cannot resolve the inactivity timer synchronization fully.

For initial transmission:

ACK: Huawei, LG, Lenovo, OPPO, Intel, InterDigital, Nokia, NEC, MediaTek, Xiaomi (10)

NACK: Apple, Ericsson, Vivo, ZTE, CATT (5)

* Working assumption: when mode 1 SL grant is not in SL active time of any destination that has data to be sent, for initial transmission and the mode 1 grant is dropped, UE sends ACK to gNB.

For retransmission:

ACK: Huawei, OPPO, Lenovo, LG, NEC, Intel, InterDIgital (7)

NACK: Vivo, Nokia, Xiaomi, Ericsson, ZTE, Apple, CATT (7)

* Continue the discussion next meeting.

(10/18) Proposal 10: RAN2 should further discuss that slots associated with the announced periodic transmissions by the TX UE are considered as SL active time of the RX UE.

[Session chair]: It is the third time for the discussion and we couldn’t make a conclusion due to diverse views. Any new aspect? [InterDigital]: In previous discussion, we waited for RAN1 response LS on HARQ RTT derived from SCI. That is now resolved. New technical argument is if we rely on PC5-RRC procedure, whenever traffic pattern in TX UE or received DRX configuration in RX UE (from one TX UE) is changed, it needs PC5-RRC reconfiguration to update DRX cycle length, so it will delay the packet transmission and may bring the packet loss. [Session chair]: Based on the companies’ views below, what about setting it as working assumption now and see whether it brings many following additional issues? If it brings many, companies may reconsider it.

* Companies supporting this option: LG, ZTE, InterDigital, Huawei, Vivo, Ericsson, Samsung, AsusTek, Lenovo, MediaTek, Nokia (11)
* Companies not supporting this option: Xiaomi, OPPO, Apple, Intel, CATT, NEC (6)
* Working assumption: slots associated with the announced periodic transmissions by the TX UE are considered as SL active time of the RX UE

(15/19) Proposal 11: TX/RX UE determines the DRX cycle applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the minimum DRX cycle configured for any of the QoS profiles associated with that L2 destination ID.

[LG]: Changed the view compared the view indicated during email discussion. [Session chair]: Let’s discuss first whether we’re going to confirm WA of down-selection or not.

To confirm working assumption (down-selection for DRX cycle and on-duration for GC/BC when multiple QoS profiles are associated with the same DST L2 id) as an agreement?

* Yes: Xiaomi, Huawei, InterDigital, Intel, Vivo, Nokia, Lenovo, Samsung, AsusTek, MediaTek (10)
* No: LG, Ericsson, OPPO, ZTE (4)
* Confirmed working assumption as an agreement.
* Agreed with proposal 11

Proposal 12: RAN2 should choose between the two options below for down-selection of on-duration timer.

- Option 1 (9/19). TX/RX UE determines the on-duration timer applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the maximum on duration timer configured for any of the QoS profiles associated with that L2 destination ID

- Option 2 (8/19). TX/RX UE selects the length of the on-duration timer associated with the same QoS profile of selected DRX cycle.

[Xiaomi]: Option1 is not good for UE power saving (may monitor longer on-duration). [LG, InterDigital]: With option2, it can bring the packet loss and it is more problematic than monitoring longer on-duration. [Session chair]: Let’s first see what possible problem is for each option then double check companies’ views. [Vivo]: With option2, we can avoid packet loss by using inactivity timer. [Session chair]: Note inactivity timer for GC is not really reliable since we have some mismatch cases and we don’t have tight synchronization mechanism. [ZTE]: There may be no inactivity timer. [Huawei]: Inactivity timer can be handled by network proper configurations. [Nokia, InterDigital]: Agree with session chair that option1 would be safer option. [Nokia]: Also share the concern for the option1. [Session chair]: We need to select one of them anyway. Suggest to make working assumption according to more companies’ support. If there is big problem with the working assumption, companies may reconsider it.

* Option1 (may have more UE power consumption): QC, Huawei, Intel, LG, InterDigital, Apple, MediaTek, Samsung, NEC (9)
* Option2 (may have packet loss): Vivo, Ericsson, ZTE, Nokia, Xiaomi, Lenovo, CATT (7)
* Working assumption: TX/RX UE determines the on-duration timer applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the maximum on duration timer configured for any of the QoS profiles associated with that L2 destination ID.

Proposal 13: RAN2 should further discuss whether / how to define UE behavior in case of MAC PDU decoding failure (i.e., only L1 DST ID is available).

* Reconfirmed no optimization at MAC PDU decoding failure (e.g. if the received L2 id is not RX UE’s actual interested L2 id).

[OPPO, Apple, InterDigital, Vivo]: There were clear majority companies not to reconsider this optimization during the email discussion. Note it was also discussed some meetings ago and it was decided not to support this option. It is now too late to reconsideration. [LG]: How to specify if decoding MAC PDU fails? [Session chair]: Guess no new UE behaviour, e.g. no change for the already started timer at the reception of L1 id in SCI.

(19/19) Proposal 14: Tx UE should select a destination associated with an Rx UE that is in SL active time for the SL transmission occasion in SL LCP.

* Agreed.

(14/18) Proposal 15: RAN2 should further discuss that the determination of RX UE's active time provided by the MAC layer to the physical layer is up to UE implementation.

* Noted. Further discussion is needed.

[Session chair]: Is it just related to how to specify it in MAC (just to simplify the specification)? Or the intention is to allow MAC can provide active time which is not actually RX UE’s active time? [OPPO]: Just to simply the specification, but the provided active time should be corresponding to RX UE’s active time. [Apple, Vivo, LG, Lenovo, CATT, InterDigital]: Exact active time should be specified for Tx UE behaviour to align with Rx UE. [Session chair]: With the relation to PDB, can PHY provide the candidate resources which are located out of the provided active time by MAC? [Vivo, InterDigital, CATT]: Yes, that’s RAN1 agreement. [Session chair]: It seems not easy to make a decision now.

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

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

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

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

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

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

* Noted. Further discussion is needed.

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

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

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

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

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

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

* Noted. Further discussion is needed.

Proposal 18: RAN2 recommends revisiting resource selection behaviour for multiple MAC PDUS after proposal 10 is decided since the resource selection behavior for transmitting multiple MAC PDUs is tightly coupled to proposal 10.

* Skipped.

(11/17) Proposal 19: RAN2 confirms that drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH (NACK) transmission is dropped.

* Agreed.

(12/17) Proposal 20: RAN2 confirms that #113-e meeting's agreement below does not apply to GC NACK only.

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

* Following RAN2 agreement is also applied to GC NACK only.

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

[Xiaomi]: Support the proposal. [OPPO, Huawei, ZTE, Vivo, Lenovo]: Changed the view and want to keep the legacy behaviour, i.e. if NACK (regardless of whether GC feedback mode), RX UE starts HARQ RTT timer in the symbol/slot following the end of PSFCH resource.

(14/18) Proposal 21: sl-drx-RetransmissionTimer is not started if PSFCH (NACK) transmission is dropped (due to UL/SL prioritization) in GC NACK only. Whether or not to start the sl-drx-HARQ-RTT-Timer if PSFCH (NACK) transmission is dropped in GC NACK only is FFS.

* No need of discussion according to the agreement in proposal 20.

(8/15) Proposal 22: For unicast, sl-drx-RetransmissionTimer is started after expiring sl-drx-HARQ-RTT-Timer when the PSFCH (NACK) transmission is dropped. FFS for ACK transmission dropping.

* Agreed.

[Huawei, Vivo, CATT]: Think RTT and retransmission timer should be also started for the case ACK transmission is dropped. [Lenovo, OPPO, ZTE, Qualcomm, Apple]: If ACK, why HARQ RTT and retransmission timer should be started? Do not see the reason. [Huawei]: To enable network schedule initial transmission during HARQ retransmission timer. [Session chair]: With this intention, does it mean HARQ RTT and retransmission timer always need to run for all cases (e.g. even ACK is sent)? [Huawei]: ok with proposal 22 itself, but want to add FFS now for the case ACK is dropped.

(9/19) Proposal 23: RAN2 confirms following option to determine the sl-drx-startoffset.

- sl-drx-StartOffset (ms) = DST L2 ID MOD sl-drx-Cycle (ms)

[Huawei, Qualcomm]: With proposal 23, it may bring the congestion problem. [OPPO, Vivo, LG, Ericsson, AsusTek, ZTE]: Do not agree with Huawei. It is what already applied to Uu. [Session chair]: At least we can set it as working assumption. If it brings real problem, companies may reconsider it. [Huawei]: Want to check companies’ views whether this working assumption is ok or not.

* Companies are ok with the working assumption: Ericsson, Nokia, OPPO, ZTE, Vivo, Intel, Samsung, Apple, Spreadtrum, AsusTek, MediaTek, NEC, LG, Fujitsu (14)
* Companies are not ok with the working assumption: Huawei, CATT, Qualcomm (3)
* Working assumption: sl-drx-StartOffset (ms) = DST L2 ID MOD sl-drx-Cycle (ms)

Agreement on MAC open issues:

1: The priority order of Sidelink DRX Command MAC CE is between Sidelink CSI Reporting MAC CE and data from any STCH.

2: When an Rx UE receives SL DRX command MAC CE from a TX UE, the Rx UE can stop the running onduration timer and inactivity timer associated with a unicast link.

3: For the same pair of L2 SRC/DST ID, the SL DRX command MAC CE can be transmitted alone or with data in the MAC PDU.

4: When a MAC PDU carrying only the SL DRX Command MAC CE is transmitted, it is transmitted as a HARQ Feedback disabled MAC PDU.

5: RAN2 does not define a separate SR configuration for SL DRX Command MAC CE.

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

7: UE uses configured sl-drx-HARQ-RTT-Timer value when the resource assignment information for the next re-transmission does not exist in the SCI regardless of whether HARQ feedback is enabled or disabled.

8: Working assumption: when mode 1 SL grant is not in SL active time of any destination that has data to be sent, for initial transmission and the mode 1 grant is dropped, UE sends ACK to gNB.

9: Working assumption: slots associated with the announced periodic transmissions by the TX UE are considered as SL active time of the RX UE.

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

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

12: Working assumption: TX/RX UE determines the on-duration timer applied for groupcast/broadcast transmissions associated with a specific L2 destination ID as the maximum on duration timer configured for any of the QoS profiles associated with that L2 destination ID.

13: Reconfirmed no optimization at MAC PDU decoding failure (e.g. if the received L2 id is not RX UE’s actual interested L2 id).

14: Tx UE should select a destination associated with an Rx UE that is in SL active time for the SL transmission occasion in SL LCP.

15: drx-RetransmissionTimerSL is started after expiring drx-HARQ-RTT-TimerSL when the PUCCH (NACK) transmission is dropped.

16: Following RAN2 agreement is also applied to GC NACK only.

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

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

18: Working assumption: for GC, sl-drx-StartOffset (ms) = DST L2 ID MOD sl-drx-Cycle (ms)

R2-2200373 Discussion on DRX left issues OPPO discussion Rel-17 NR\_SL\_enh-Core

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

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

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

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

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

R2-2200318 Leftover Issues for Sidelink Unicast DRX CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2200264 Discussion on remaining issues of SL DRX ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2200319 Leftover issues for Sidelink GCBC DRX CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2200344 Further discussions on leftover issues of sidelink DRX configuration NEC Corporation discussion

R2-2200345 Further discussions on sidelink MAC open issues NEC Corporation discussion

R2-2200374 Discussion on DRX left issues from [716] [718] OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2200415 SL DRX CP aspects Lenovo, Motorola Mobility discussion NR\_SL\_enh-Core Revised

R2-2200483 Remaining issues for sidelink DRX Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2200484 Remaining issues of SL communication impact on Uu DRX Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2200528 Leftover aspects on SL DRX Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2200530 On SL DRX and candidate resource selection Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2200535 Discussion on remaining issues for SL DRX LG Electronics France discussion Rel-17 NR\_SL\_enh-Core

R2-2200536 Consideration on sidelink DRX for unicast LG Electronics France discussion Rel-17 NR\_SL\_enh-Core Withdrawn

R2-2200544 Consideration on sidelink DRX for unicast LG Electronics France discussion Rel-17

R2-2200545 Discussion on resource (re-)selection in SL DRX SHARP Corporation discussion NR\_SL\_enh-Core

R2-2200749 Discussion on remaining issues regarding Sidelink DRX ASUSTeK discussion Rel-17 NR\_SL\_enh-Core

R2-2200762 Remaining MAC issues for SL DRX Lenovo, Motorola Mobility discussion Rel-17

R2-2200786 NR Sidelink Synchronization Reference Search Optimization at UE for Power Saving Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh-Core

R2-2200790 Discussion on Uu impact Xiaomi discussion

R2-2200791 Discussion on Sidelink DRX open issues Xiaomi discussion

R2-2200893 RRC remaining issues on SL DRX vivo discussion Rel-17

R2-2200894 MAC remaining issues on SL DRX vivo discussion Rel-17

R2-2200938 Remaining aspects of SL DRX Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2201061 Discussion on remaining issues of SL DRX timers ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2201135 Discussion on remaining issues on SL-DRX Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2201150 Resource Selection Considering DRX InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2201151 Consideration of the Active Time for Periodic Transmissions InterDigital, Ericsson, ZTE, AsusTek, Huawei, HiSilicon, Lenovo, Motorola Mobility, Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_enh-Core

=> Revised in R2-2201635

R2-2201635 Consideration of the Active Time for Periodic Transmissions InterDigital, Ericsson, ZTE, AsusTek, Huawei, HiSilicon, Lenovo, Motorola Mobility, Nokia, Nokia Shanghai Bell, Samsung discussion Rel-17 NR\_SL\_enh-Core

R2-2201152 Remaining Aspects on SL DRX InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2201458 SL data transmission considering SL DRX active time Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh-Core R2-2110747

R2-2201478 Resource selection considering SL DRX ITL discussion

R2-2201523 SL DRX CP aspects Lenovo, Motorola Mobility discussion NR\_SL\_enh-Core R2-2200415

R2-2201582 UE report on SL DRX for Uu DRX alignment Samsung Research America discussion

R2-2201585 Remaining details for GC/BC Samsung Research America discussion

R2-2201624 Discussion on Remaining Design Aspects for SL DRX Qualcomm Finland RFFE Oy discussion

### 8.15.3 Resource allocation enhancements RAN2 scope

Including RAN2 discussion scope on random selection, partial sensing and inter-UE coordination. This agenda item may utilize a summary document (TBD).

* [AT116bis-e][704][V2X/SL] Resource allocation enhancements (LG)

 **Scope:** Identify real RAN2 scopes/issues to be discussed /decided in RAN2. Rapporteur should check each issue whether RAN2 should discuss/decide it or RAN2 leaves it to RAN1.

 **Intended outcome:** Summary discussion in R2-2201804

**Deadline:** 1/24 13:00 UTC

* [POST116bis-e][706][V2X/SL] Open issues on power-saving resource allocation (Vivo)

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

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

 **Intended outcome:** Open issue list with the proposed candidate options or rapporteur’s suggestion from 1st phase (in R2-2201806). Discussion summary for the identified open issues from 2nd phase.

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

* [POST116bis-e][707][V2X/SL] Open issues on IUC (LG)

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

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

 **Intended outcome:** Open issue list with the proposed candidate options or rapporteur’s suggestion from 1st phase (in R2-2201807). Discussion summary for the identified open issues from 2nd phase.

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

[Session chair]: We plan to have discussion on on-going email discussion [AT116bis-e][704] next week session. Due to short time until 1/28, it is recommended [POST116bis-e][706] and [POST116bis-e][707] rapporteurs prepare and start the discussion from 1/21. However, rapporteurs may need to update the open issue list based on the outputs of next week session (e.g. if RAN2 decides an issue is not RAN2 scope and leave it to RAN1, etc.)

R2-2200379 RAN2 aspects on resource allocation enhancements for Rel-17 eSL vivo discussion

R2-2200537 Discussion on Inter-UE Coondination MAC CE LG Electronics France discussion Rel-17 NR\_SL\_enh-Core

R2-2200263 Discussion on inter-UE coordination ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2200317 Consideration on Resource Allocation Enhancements CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2200349 Discussion on candidate resource selection with DRX and inter-UE coordination NEC Corporation discussion

R2-2200375 Discussion on resource allocation enhancement OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2200485 Consideration on resource allocation enhancement Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2200529 On resource allocation and inter-UE coordination Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2200642 Discussion on resource allocation enhancement for NR sidelink Spreadtrum Communications discussion Rel-17

R2-2200750 Discussion on inter-UE coordination ASUSTeK discussion Rel-17 NR\_SL\_enh-Core

R2-2200763 RAN2 impacts on SL Resource allocation enhancements Lenovo, Motorola Mobility discussion Rel-17

R2-2200792 Discussion on inter-UE coordination impact in RAN2 Xiaomi discussion

R2-2200799 On Signalling for Inter UE Coordination Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_enh-Core

R2-2200939 MAC CE design of inter-UE coordination Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2201134 Discussion on Inter-UE Coordination Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2201457 Power Reduction for Sidelink Mode 2 Resource Allocation Fraunhofer IIS, Fraunhofer HHI discussion Rel-17

R2-2201459 Inter-UE Coordination for Sidelink Mode 2 Resource Allocation Fraunhofer IIS, Fraunhofer HHI discussion Rel-17

R2-2201479 Interaction between partial sensing and DRX Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2201591 Resource allocation enhancements Samsung Research America discussion

R2-2201625 Discussion on Inter-UE Coordination Qualcomm Finland RFFE Oy discussion