3GPP TSG-RAN WG2 Meeting #124 R2-2313561
Chicago, USA, November 13 – 17 2023

Agenda Item: 8.1

Source: Vice Chairman (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.

## List and Status of Offline/Email Discussions

* [AT124][101][V2X/SL] Rel-16/17 CP corrections (Huawei)

 **Scope:** Discuss and conclude the corrections proposed in R2-2312079/R2-2312080, R2-2313090/R2-2313092, R2-2313183/R2-2313184, and R2-2313085/R2-2313086. Also including field description enhancement from the discussion on R2-2312503.

 **Intended outcome:** Discussion summary in R2-2313601. Merged 38.331 CR in R2-2313602. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

* [AT124][102][V2X/SL] Rel-16/17 UP corrections (LG)

 **Scope:** Discuss and conclude the corrections proposed in R2-2312530/R2-2312531 (also including R2-2312532), R2-2313088, and R2-2313186.

 **Intended outcome:** Discussion summary in R2-2313603. Merged Rel-17 38.321 CR in R2-2313604. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

* [POST124][103][V2X/SL] Response LS on PEMAX,CA (LG)

 **Scope:** Prepare response LS to RAN4 according to RAN2 agreement.

 **Intended outcome:** Response LS in R2-2313605.

**Deadline:** Short email discussion

* [POST124][104][V2X/SL] Rel-18 38.331 CR (OPPO)

 **Scope:** Prepare Rel-18 38.331 CR (including agreements to be made in RAN2#124)

 **Intended outcome:** 38.331 CR in R2-2313606.

**Deadline:** Short email discussion.

* [POST124][105][V2X/SL] Rel-18 38.321 CR (LG)

 **Scope:** Prepare Rel-18 38.321 CR (including agreements to be made in RAN2#124). Also includes P3 in R2-2312824.

 **Intended outcome:** 38.321 CR in R2-2313607.

**Deadline:** Short email discussion.

* [POST124][106][V2X/SL] Rel-18 38.300 CR (IDC)

 **Scope:** Prepare Rel-18 38.300 CR (including agreements to be made in RAN2#124)

 **Intended outcome:** 38.300 CR in R2-2313608.

**Deadline:** Short email discussion.

* [POST124][107][V2X/SL] Rel-18 38.304 CR (ZTE)

 **Scope:** Prepare Rel-18 38.304 CR (including agreements to be made in RAN2#124)

 **Intended outcome:** 38.304 CR in R2-2313609.

**Deadline:** Short email discussion.

* [POST124][108][V2X/SL] Rel-18 38.323 CR (CATT)

 **Scope:** Prepare Rel-18 38.323 CR (including agreements to be made in RAN2#124)

 **Intended outcome:** 38.323 CR in R2-2313610.

**Deadline:** Short email discussion.

* [AT124][109][V2X/SL] Rel-18 UE capability CR (Huawei)

 **Scope:** Prepare Rel-18 UE capability CRs (including agreements to be made in RAN2#124). It includes the issues raised in R2-2313041.

 **Intended outcome:** Discussion summary in R2-2313611. UE capability draft CRs in R2-2313612/R2-2313613. Email Approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

* [AT124][110][V2X/SL] TP for TR37.985 (Huawei)

 **Scope:** Prepare TP for TR37.985 and LS to RAN1.

 **Intended outcome:** TP in R2-2313614. LS in R2-2313615. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

* [AT124][111][V2X/SL] RRC details (OPPO)

 **Scope:** Discuss proposals in R2-2311805, R2-2311941, R2-2312050 and R2-2312455. Note not all proposals may be handled. It is up to rapporteur what proposals are discussed (e.g. agreeable proposals, essential discussion for 38.331, etc.). Note discussion should not be overlapped with the list of discussion in 7.15.2.

 **Intended outcome:** Discussion summary in R2-2313616.

**Deadline:** f2f offline discussion. Location and date/time will be announced via email. Come back in Thursday CB session. => Completed.

* [AT124][112][V2X/SL] MAC details (LG)

 **Scope:** Discuss proposals in R2-2312194, R2-2311876, R2-2311942, R2-2312051, R2-2312179, R2-2312433, R2-2312456, R2-2312788, R2-2312933, R2-2313027, and R2-2313154. Note not all proposals may be handled. It is up to rapporteur what proposals are discussed (e.g. agreeable proposals, essential discussion for 38.321, etc.). Note discussion should not be overlapped with the list of discussion in 7.15.2.

 **Intended outcome:** Discussion summary in R2-2313617. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

* [AT124][113][V2X/SL] LS to SA2 (Cc: SA6) (IDC)

 **Scope:** Prepare LS to SA2 (Cc: SA6) on QoS flows mapping to carriers in CA

 **Intended outcome:** LS in R2-2313620. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed

* [AT124][114][V2X/SL] LS to RAN1 (OPPO)

 **Scope:** Prepare LS to RAN1. The LS will simply capture RAN2 agreement and ask feedback if there is concern.

 **Intended outcome:** LS in R2-2313621.

**Deadline:** 11/14 19:00 (in Chicago local time) => Completed.

* [POST124][115][V2X/SL] LS to SA2/CT1 (Xiaomi)

 **Scope:** Prepare LS to SA2/CT1 to inform RAN2 decision on TX Profile.

 **Intended outcome:** LS in R2-2313622.

**Deadline:** Short email discussion

## Approved outgoing LSs

R2-2313618 Reply LS on frequencyInfo for NR SL RSRP measurement LS out Rel-16 5G\_V2X\_NRSL-Core To:RAN4 Cc:RAN1, RAN4

R2-2313615 LS on Rel-18 RAN2 TP for TR 37.985 LS out Rel-18 NR\_SL\_enh2 To:RAN1

R2-2313623 LS to SA2 on QoS to Carrier Mapping for SL CA LS out Rel-18 NR\_SL\_enh2 To:SA2 Cc:SA6

R2-2313621 LS on Sidelink CSI Reporting MAC-CE for SL-CA LS out Rel-18 NR\_SL\_enh2 To:RAN1

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

REL-15 and Earlier WIs related to V2x and Sidelink are in scope but not listed explicitly (long list).

This Agenda Item is treated in the V2X and Sidelink Breakout session

## 5.2 NR V2X

(5G\_V2X\_NRSL-Core; leading WG: RAN1; REL-16; started: Mar 19; target; Aug 20; WID: [RP-200129](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_87e/Docs/RP-200129.zip)).

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.).

### 5.2.0 In Principle Agreed CRs

R2-2311831 Corrections to random access cancellation criteria for sidelink BSR and CSI reporting Samsung Electronics Co., Ltd CR Rel-16 38.321 16.13.0 1668 1 F 5G\_V2X\_NRSL-Core R2-2309773

=> Agreed.

R2-2311832 Corrections to random access cancellation criteria for sidelink BSR and CSI reporting Samsung Electronics Co., Ltd CR Rel-17 38.321 17.6.0 1669 1 A 5G\_V2X\_NRSL-Core R2-2309774

=> Revised in R2-2313578

R2-2313578 Corrections to random access cancellation criteria for sidelink BSR and CSI reporting Samsung Electronics Co., Ltd CR Rel-17 38.321 17.6.0 1669 2 A 5G\_V2X\_NRSL-Core R2-2311832

=> Agreed.

R2-2311883 Correction of SL synchronisation measurement OPPO CR Rel-16 38.331 16.14.0 4311 1 F 5G\_V2X\_NRSL-Core R2-2309678

=> Agreed.

R2-2311884 Correction of SL synchronisation measurement OPPO CR Rel-17 38.331 17.6.0 4329 1 A 5G\_V2X\_NRSL-Core R2-2310439

=> Agreed.

R2-2312528 Correction on MAC layer for sidelink ZTE Corporation, Sanechips CR Rel-16 38.321 16.13.0 1675 2 F 5G\_V2X\_NRSL-Core R2-2311581

=> Agreed.

R2-2312529 Correction on MAC layer for sidelink ZTE Corporation, Sanechips CR Rel-17 38.321 17.6.0 1676 2 A NR\_SL\_enh-Core R2-2311582

=> Revised in R2-2313582

R2-2313582 Correction on MAC layer for sidelink ZTE Corporation, Sanechips CR Rel-17 38.321 17.6.0 1676 3 A 5G\_V2X\_NRSL-Core

=> Agreed.

R2-2311882 Correction of SL synchronisation measurement OPPO CR Rel-16 38.321 16.13.0 1693 - F 5G\_V2X\_NRSL-Core R2-2309678 Withdrawn

### 5.2.1 Other

R2-2311711 Response LS on frequencyInfo for NR SL RSRP measurements (R1-2310559; contact: Huawei) RAN1 LS in Rel-16 5G\_V2X\_NRSL-Core To:RAN2 Cc:RAN4, RAN5

[OPPO]: What does “usable subcarrier” really mean? Is it for the first carrier in SL BWP or carrier BW? [Huawei]: No clear answer now. We can agree with the current text and further check it later. [Huawei]: In the updated field description, it is clear the carrier is where SL RSRP is measured and what the carrier is determined by “determined according to.. blabla” Whether the carrier “determined by blabla” is for the first carrier of SL BWP or carrier BW can be checked later. [OPPO]: Ok, we understand it indicates the first carrier of carrier BW

=> Noted.

R2-2312078 Draft reply LS on frequencyInfo for NR SL RSRP measurement Huawei, HiSilicon LS out Rel-16 5G\_V2X\_NRSL-Core To:RAN4 Cc:RAN1, RAN4

[Session Chair]: Do we need separate LS in addition to 11711? RAN5 was already included.

[Huawei]: RAN2 needs to confirm what RAN1 indicated in their LS. Without LS from RAN2, RAN5 cannot know whether RAN2 agreed with RAN1 LS or not.

=> Approved in R2-2313618.

R2-2313029 Impact of SL power class on cell selection and reselection Ericsson discussion Rel-16 5G\_V2X\_NRSL-Core

[OPPO]: SL resource pool should be coordinated to avoid UL resources, then there is no interference issue. Similar discussion happened for SSB transmission (e.g. whether we need separate Pmax for SSB transmission or not) in the past and conclusion was not to change the current criterion (due to no consensus in RAN1).

=> Noted.

R2-2312079 Correction on carrier frequency for NR SL RSRP measurement Huawei, HiSilicon CR Rel-16 38.331 16.14.0 4409 - F 5G\_V2X\_NRSL-Core

=> Agreed.

R2-2312080 Correction on carrier frequency for NR SL RSRP measurement Huawei, HiSilicon CR Rel-17 38.331 17.6.0 4410 - A 5G\_V2X\_NRSL-Core

=> Agreed.

R2-2313090 Correction on SL measurements RRC Philips International B.V. CR Rel-16 38.331 16.14.0 4464 - F 5G\_V2X\_NRSL-Core

=> Noted.

R2-2313092 Correction on SL measurements RRC Philips International B.V. CR Rel-17 38.331 17.6.0 4465 - A 5G\_V2X\_NRSL-Core

=> Noted.

R2-2313183 Correction on type-1 SL CG ASUSTeK, Ericsson CR Rel-16 38.331 16.14.0 4473 - F 5G\_V2X\_NRSL-Core

=> Agreed.

R2-2313184 Correction on type-1 SL CG ASUSTeK, Ericsson CR Rel-17 38.331 17.6.0 4474 - A 5G\_V2X\_NRSL-Core

=> Agreed.

R2-2313085 Correction on NR SL Stage 2 Philips International B.V. CR Rel-16 38.300 16.14.0 0737 - F 5G\_V2X\_NRSL-Core

=> Agreed.

R2-2313086 Correction on NR SL Stage 2 Philips International B.V. CR Rel-17 38.300 17.6.0 0738 - A 5G\_V2X\_NRSL-Core

=> Agreed.

* [AT124][101][V2X/SL] Rel-16/17 CP corrections (Huawei)

 **Scope:** Discuss and conclude the corrections proposed in R2-2312079/R2-2312080, R2-2313090/R2-2313092, R2-2313183/R2-2313184, and R2-2313085/R2-2313086. Also including field description enhancement from the discussion on R2-2312503.

 **Intended outcome:** Discussion summary in R2-2313601. Merged 38.331 CR in R2-2313602. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

R2-2313601 Summary on [AT124][101][V2X/SL] Rel-16 CP corrections (Huawei) Huawei discussion Rel-16 5G\_V2X\_NRSL-Core

Proposal 1: Change in R2-2312079/R2-2312080 is agreed as it is.

Proposal 2: Proponent of changes in R2-2313090/R2-2313092 to directly contact RRC spec rapporteur on the handling of proposed editorial changes. R2-2313090/R2-2313092 to be noted.

Proposal 3: Change in R2-2313183/R2-2313184 is agreed as it is.

Proposal 4: Change in R2-2313085/R2-2313086 is agreed as it is.

Proposal 5: Change related to R2-2312503 is agreed. Proponent companies to prepare CR in R2-2313901 with TP in R2-2312503.

=> All proposals are agreed.

R2-2312530 Correction on MAC layer for sidelink ZTE Corporation, Sanechips CR Rel-16 38.321 16.13.0 1707 - F 5G\_V2X\_NRSL-Core

=> Not pursued.

R2-2312531 Correction on MAC layer for sidelink ZTE Corporation, Sanechips CR Rel-17 38.321 17.6.0 1708 - A NR\_SL\_enh-Core

=> Not pursued.

* [AT124][102][V2X/SL] Rel-16/17 UP corrections (LG)

 **Scope:** Discuss and conclude the corrections proposed in R2-2312530/R2-2312531 (also including R2-2312532), R2-2313088, and R2-2313186.

 **Intended outcome:** Discussion summary in R2-2313603. Merged Rel-17 38.321 CR in R2-2313604. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

R2-2313603 Summary of AT124][102][V2X/SL] Rel-16/17 UP corrections (LG) LG discussion Rel-16 5G\_V2X\_NRSL-Core

Proposal 1 (0/10): Corrections in R2-2312530, R2-2312531 and R2-2312532 are not agreed.

Proposal 2 (9/0): Correction in R2-2313088 is agreed.

Proposal 3 (8/0): Correction in R2-2313186 is agreed.

=> All proposals are agreed.

R2-2312522 Impact of SL power class on cell selection and reselection Ericsson discussion Rel-16 5G\_V2X\_NRSL-Core Withdrawn

## 6.6 NR Sidelink enhancements

(NR\_SL\_enh-Core; leading WG: RAN1; REL-17; WID: [RP-202846](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_90e/Docs/RP-202846.zip))

Tdoc Limitation: 1 tdoc

Note for RRC and MAC CRs, CR rapporteur’s summary and suggestion may be provided. 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.).

### 6.6.0 In Principle Agreed CRs

R2-2312083 Misc RRC corrections for SL enhancements Huawei, HiSilicon (Rapporteur), Apple CR Rel-17 38.331 17.6.0 4390 1 F NR\_SL\_enh-Core R2-2311492

=> Agreed.

R2-2313577 Rel-17 MAC corrections LG, OPPO, Huawei, HiSilicon, Samsung, ZTE Corporation, Sanechips, Ericsson, Lenovo, Interdigital CR Rel-17 38.321 17.6.0 1691 1 F NR\_SL\_enh-Core R2-2311494

=> Agreed.

### 6.6.1 Other

R2-2312503 Discussion on the field description related to CBR-based transmission Sharp, Philips, Apple discussion Rel-17 5G\_V2X\_NRSL-Core

=> Interpretation based on figures are correct.

=> How to enhance the current field description according to the interpretation will be discussed as part of email discussion [AT124][101][V2X/SL].

=> Change is applied from Rel-17 (if needed)

[Apple]: If we change, Rel-16 or Rel-17 CR? [Huawei]: It is not so critical so prefer having Rel-17 CR if needed. [Qualcomm]: Agree with Huawei.

R2-2313901 Correction on field description related to CBR-based transmission Sharp, Philips International B.V., Apple CR Rel-17 38.331 17.6.0 4505 - F NR\_SL\_enh-Core

=> Agreed.

R2-2312341 Correction on SL-DRX reject reporting to gNB Apple, Huawei, HiSilicon, OPPO CR Rel-17 38.331 17.6.0 4423 - F NR\_SL\_enh-Core

=> Change “UE considers another sidelink DRX rejection of a new SL DRX configuration from the same associated peer UE as "change" of *sl-FailureList”* to “It is up to UE implementation to consider another sidelink DRX rejection of a new SL DRX configuration from the same associated peer UE as "change" of sl-FailureList”

=> Agreed in R2-2313619 with the change.

[Session chair]: Isn’t “may consider” better since it’s a NOTE? [Apple]: Ok to update it. [Huawei]: It is better to say “It’s up to UE implementation.. blabla..” [Apple]: Suggest “can consider”. [OPPO]: If we specify as “can consider”, it can be interpreted as UE capability. [Xiaomi]: Prefer indicating “It’s up to UE implementation blabla”.

R2-2312340 Correction on PC5 PDCP reestablishment Apple, ZTE CR Rel-17 38.323 17.5.0 0129 - F NR\_SL\_enh-Core

=> Not pursued.

[Xiaomi]: If it is clear that *drb-ContinueUDC* is not configured for SL, why we need to put a restriction even for “else” case? [Lenovo]: Share the same interpretation as Xiaomi, but no strong view if companies consider it’s not clear enough. [Vivo]: Agree with intention, but we may consider putting a note. [Ericsson]: Agree with Xiaomi.

R2-2312532 Correction on MAC layer for sidelink enhancement ZTE Corporation, Sanechips CR Rel-17 38.321 17.6.0 1709 - F NR\_SL\_enh-Core

=> Not pursued.

R2-2313186 MAC correction for Sidelink CSI reporting ASUSTeK CR Rel-17 38.321 17.6.0 1720 - F NR\_SL\_enh-Core

=> Agreed.

R2-2313088 Correction on NR SL MAC Philips International B.V. CR Rel-17 38.321 17.6.0 1718 - F 5G\_V2X\_NRSL-Core

=> Agreed.

## 7.15 NR Sidelink evolution

(NR\_SL\_enh2; leading WG: RAN1; REL-18; WID: [RP-230077](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_99/Docs/RP-230077.zip))

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

### 7.15.1 Organizational

Includes Incoming LS, WI rapporteur inputs (including a list of critical functional level open issues for WI completion. Note functions that are good to have but not essential are not considered as critical open issues for WI completion), and stage-2 and stage-3 running CRs from the assigned CR rapporteurs. Detailed RRC/MAC/PDCP/UE Capability stage 3 issue list (with the rapporteur suggestion) by CR rapporteurs may be provided.

R2-2311705 Reply LS on SL RB set index and LBT failure indication for PSFCH (R1-2310434; contact: OPPO) RAN1 LS in Rel-18 NR\_SL\_enh2-Core To:RAN2

=> Noted. MAC/RRC CR rapporteurs (LG/OPPO) will take it into account in works.

R2-2311755 LS on a capability of UE power class and IE on PEMAX,CA for SL CA (R4-2317751; contact: LGE, OPPO) RAN4 LS in Rel-18 NR\_SL\_enh2-Core To:RAN2 Cc:RAN1

=> For the first issue, UE Capability CR rapporteur (Huawei) will take it into account in works.

=> RAN2 will ask RAN4 to include this capability into RAN4 feature list.

[Huawei]: Who will handle this capability? Huawei (UE capability CR rapporteur) or Intel (UE capability spec rapporteur)? [OPPO]: We need to respond indicating RAN2 assume RAN4 will include it to RAN4 feature list so it is not missed.

For the second issue (P1: 11793: OPPO, P2: 12514: Ericsson)

=> Alt.2 (define new IE for SL CA, i.e., PEMAX,CA = new IE, *sl-maxTransPower-CA*) is agreed.

[Vivo]: For option 1, we assume it’s for the selected carriers. [Qualcomm]: Prefer option 1. [OPPO]: If we go option 1, then does it mean “10 log10 ∑ pEMAX,C“ is only considered and actually we will suggest to remove “PEMAX,CA“ in the formula in RAN4 LS? [Ericsson]: It will be up to RAN4. [OPPO]: If we go Alt.1, last term should be removed. Otherwise, if RAN4 decides in the other way later, we need to introduce signaling later, so Alt.2 would be safer option. Signaling overhead is not really big deal for this one. [CATT]: Did we have both terms in single carrier case? [OPPO]: This question is only for CA case. [Ericsson]: RAN4 LS did not ask feasibility of each option. Seems both options are feasible. [Session chair]: Let’s check companies views. [Ericsson]: Signaling overhead is concerned. [Session chair]: Prefer going safer option. [LG]: Note Alt.2 is aligned with Uu case. [Ericsson]: Would like to have more time to check with RAN4. [Nokia]: We can agree with Alt.2 and comeback if Ericsson finds any problem. [Session chair]: If the concern is about signaling overhead, it’s up to RAN2.

* Alt. 1: Vivo, Ericsson, Apple, ZTE, CATT, Qualcomm
* Alt. 2: Nokia, LG, Xiaomi, Huawei, OPPO, IDC
* [POST124][103][V2X/SL] Response LS on PEMAX,CA (LG)

 **Scope:** Prepare response LS to RAN4 according to RAN2 agreement.

 **Intended outcome:** Response LS in R2-2313605.

**Deadline:** Short email discussion

R2-2311764 Reply LS on TX Profile for SL CA (S2-2311811; contact: LGE) SA2 LS in Rel-18 NR\_SL\_enh2 To:RAN2 Cc:CT1

=> Noted.

[CATT]: It seems TX Profile for CA/PDCP duplication is applied only to GC/BC. Want to check if it’s common understanding in RAN2 [Apple, Qualcomm]: It is applied only to GC/BC.

=> RAN2 understands TX profile for CA/PDCP duplication is applied only to GC/BC.

R2-2311787 Work plan of R18 SL-Evo OPPO, LG Work Plan Rel-18 NR\_SL\_enh2

R2-2311788 Per-WI Open Issue list for R18 SL-Evo OPPO, LG Work Plan Rel-18 NR\_SL\_enh2

=> Both work plan and per-WI open issue list are noted.

R2-2311789 Stage-3 RRC Open Issue list for R18 SL-Evo OPPO, LG Work Plan Rel-18 NR\_SL\_enh2

=> Noted.

R2-2311790 Introduction of Release-18 SL Evolution OPPO CR Rel-18 38.331 17.6.0 4391 - B NR\_SL\_enh2

[Session Chair]: Any change compared to the version we endorsed after RAN2#123bis? [OPPO]: Updated some RRC parameters.

* [POST124][104][V2X/SL] Rel-18 38.331 CR (OPPO)

 **Scope:** Prepare Rel-18 38.331 CR (including agreements to be made in RAN2#124)

 **Intended outcome:** 38.331 CR in R2-2313606.

**Deadline:** Short email discussion.

R2-2311955 Introduction of Release-18 SL Evolution in TS 38.321 LG Electronics France CR Rel-18 38.321 17.6.0 1695 - B NR\_SL\_enh2

=> Endorsed.

[Session Chair]: Any change compared to the version we discussed after RAN2#123bis? [LG]: No.

* [POST124][105][V2X/SL] Rel-18 38.321 CR (LG)

 **Scope:** Prepare Rel-18 38.321 CR (including agreements to be made in RAN2#124). Also includes P3 in R2-2312824.

 **Intended outcome:** 38.321 CR in R2-2313607.

**Deadline:** Short email discussion.

R2-2312185 Introduction of NR Sidelink Evolution InterDigital CR Rel-18 38.300 17.6.0 0728 - B NR\_SL\_enh2

* [POST124][106][V2X/SL] Rel-18 38.300 CR (IDC)

 **Scope:** Prepare Rel-18 38.300 CR (including agreements to be made in RAN2#124)

 **Intended outcome:** 38.300 CR in R2-2313608.

**Deadline:** Short email discussion.

R2-2311943 Introduction of Release-18 SL Evolution in TS 38.304 ZTE Corporation, Sanechips CR Rel-18 38.304 17.6.0 0359 - B NR\_SL\_enh2

* [POST124][107][V2X/SL] Rel-18 38.304 CR (ZTE)

 **Scope:** Prepare Rel-18 38.304 CR (including agreements to be made in RAN2#124)

 **Intended outcome:** 38.304 CR in R2-2313609.

**Deadline:** Short email discussion.

R2-2311952 Introduction of NR sidelink PDCP duplication in TS 38.323 CATT CR Rel-18 38.323 17.5.0 0126 - B NR\_SL\_enh2-Core

* [POST124][108][V2X/SL] Rel-18 38.323 CR (CATT)

 **Scope:** Prepare Rel-18 38.323 CR (including agreements to be made in RAN2#124)

 **Intended outcome:** 38.323 CR in R2-2313610.

**Deadline:** Short email discussion.

R2-2313041 Discussion on open issues of UE capabilities for Rel-18 SL evolution Huawei, HiSilicon discussion Rel-18 NR\_SL\_enh2

R2-2313042 Draft introduction of SL evolution for TS 38.306 Huawei, HiSilicon draftCR Rel-18 38.306 17.6.0 B NR\_SL\_enh2

R2-2313043 Draft introduction of SL evolution UE capabilities for TS 38.331 Huawei, HiSilicon draftCR Rel-18 38.331 17.6.0 B NR\_SL\_enh2

* [AT124][109][V2X/SL] Rel-18 UE capability CR (Huawei)

 **Scope:** Prepare Rel-18 UE capability CRs (including agreements to be made in RAN2#124). It includes the issues raised in R2-2313041.

 **Intended outcome:** Discussion summary in R2-2313611. UE capability draft CRs in R2-2313612/R2-2313613. Email Approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

R2-2313611 Summary of [AT124][109][V2X/SL] Rel-18 UE capability CR (Huawei) Huawei, HiSilicon discussion Rel-18 NR\_SL\_enh2

Proposal 1: For higher layer UE capability signaling, RAN2 to define pdcp-DuplicationSRB-sidelink-r18 and pdcp-DuplicationDRB-sidelink-r18 as UE capability parameters for all cast types for Rel-18 SL evolution.

Proposal 2: For higher layer UE capability signaling to gNB, RAN2 to define sl-LBT-FailureDetectionRecovery-r18 as per UE and for all cast type for Rel-18 SL evolution.

Proposal 3: No need for RAN2 to introduce a further higher layer UE capability for NR SL communication with SL CA, other than RAN1 defined capability “47-v1, NR SL communication with SL CA”.

=> All proposals are agreed.

R2-2313612 Draft introduction of SL evolution for TS 38.306 Huawei, HiSilicon draftCR Rel-18 38.306 17.6.0 B NR\_SL\_enh2

=> Endorsed.

R2-2313613 Draft introduction of SL evolution UE capabilities for TS 38.331 Huawei, HiSilicon draftCR Rel-18 38.331 17.6.0 B NR\_SL\_enh2

=> Endorsed.

R2-2313044 Draft Rel-18 RAN2 TP for TR 37.985 Huawei, HiSilicon draftCR Rel-18 37.985 17.1.1 NR\_SL\_enh2

R2-2313045 Draft LS on Rel-18 RAN2 TP for TR 37.985 Huawei, HiSilicon LS out Rel-18 NR\_SL\_enh2 To:RAN1

* [AT124][110][V2X/SL] TP for TR37.985 (Huawei)

 **Scope:** Prepare TP for TR37.985 and LS to RAN1.

 **Intended outcome:** TP in R2-2313614. LS in R2-2313615. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

R2-2313614 Draft Rel-18 RAN2 TP for TR 37.985 Huawei, HiSilicon draftCR Rel-18 37.985 17.1.1 NR\_SL\_enh2

=> Endorsed.

R2-2313615 LS on Rel-18 RAN2 TP for TR 37.985 LS out Rel-18 NR\_SL\_enh2 To:RAN1

=> Approved.

 [Session chair]: Do we have any significant open issue to stop WI completion? [OPPO]: No [Session chair]: Can we declare WI is completed? [OPPO]: Yes [Session chair]: No company has a concern.

=> WI is completed.

### 7.15.2 Open issues

Includes [POST123bis][113], confirmation of working assumptions, etc., based on essential open issue list provided by WI rapporteur.

**QoS flows mapping to carriers:**

R2-2311791 Summary of [POST123bis][113][V2XSL] QoS flows mapping to carriers (OPPO) OPPO discussion Rel-18 NR\_SL\_enh2

 Proposal 1 R2 discuss whether to adopt option-1 or option-2 to enforce the flow-to-carrier mapping for RRC\_IDLE/RRC\_INACTIVE/OOC scenarios.

Proposal 2 If R2 converges on option-1, R2 discuss the left issue(s) for spec impact, e.g., 1) For Inter-operability issue, whether to differentiate the configuration for legacy UE and new UE behavior, 2) For flow-ID/LCID space mismatch issue, whether to extend the LCID space for DRB.

Proposal 3 If R2 converges on option-2, R2 discuss the left issue(s) for spec impact, e.g., 1) whether to leave the no-intersection case to UE implementation.

Proposal 4 If R2 cannot reach consensus for either option-1 or option-2, R2 conclude that R2 not pursue further optimization to enforce flow-to-carrier mapping for RRC\_IDLE/RRC\_INACTIVE/OOC scenarios in Rel-18.

Proposal 5 R2 send LS to S2, to 1) to ask whether the flow-to-carrier mapping applies to GC/BC, and in case R2 cannot reach consensus for either option-1 or option-2, 2) notify S2 on the status of R2 in Rel-18.

P1: R2-2312032: LG

Proposal 1. RAN2 introduces per packet handling (not per LCH handling) based LCP procedure for SL CA enhancement.

[Apple]: For LG proposal, how to handle if a packet has multiple QoS?

[Session chair]: Four options now.

* Option 1: UE establish multiple SLRBs to avoid different carrier for QoS flow ids in a SLRB
* Option 2: Intersection among QoS flow ids belonging to a SLRB is considered in LCP
* Option 3: Do nothing, i.e. QoS flows to carrier mapping is not supported in Rel-18
* Option 4: LCP per packet (R2-2312032)

=> Option 2 is agreed. RAN2 understand NW/upper layer provides appropriate intersections if the service wants CA/PDCP duplication.

=> Will send LS to SA2.

[Apple]: With option 2, we can send LS to SA2 to ask to provide appropriate intersections if the service type wants to CA/PDCP duplication, then there is no real blocking issue for option 2. [IDC, LG, Ericsson]: Shares the view with Apple and RAN2 will not make any further enhancement to handle no intersection case. [Huawei, Nokia]: Can accept option 2 to make a progress. [NEC]: Even with intersection case, option 2 can reduce CA performance. [Nokia]: Assume RAN2 will not make any further enhancement to handle no intersection case. [Qualcomm, Vivo]: Agree with NEC. We need quite high throughput for V2X use case. Have concern with option 2. [Apple]: If a service type needs high data rate, NW should provide the appropriate configurations. [Session chair]: Seems majority companies are ok with option 2. We need to send LS to SA2 for appropriate configurations for CA/PDCP duplication. [Qualcomm]: We need to include SA6 as Cc.

[IDC]: Don’t we need to ask whether QoS flows to carriers mapping is applicable for all case types or only to GC/BC? [LG, OPPO, Qualcomm]: Understand it is applicable to all cast types according to the latest SA2 status.

**Agreements on QoS flows mapping to carriers:**

1. Intersection among QoS flow ids belonging to a SLRB is considered in LCP. RAN2 understand NW/upper layer provides appropriate intersections if the service wants CA/PDCP duplication.
* [AT124][113][V2X/SL] LS to SA2 (Cc: SA6) (IDC)

 **Scope:** Prepare LS to SA2 (Cc: SA6) on QoS flows mapping to carriers in CA

 **Intended outcome:** LS in R2-2313620. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed

R2-2313620 LS to SA2 on QoS to Carrier Mapping for SL CA LS out Rel-18 NR\_SL\_enh2 To:SA2 Cc:SA6

=> “and provide feedback if any concerns” is removed from Actions

=> Approved in R2-2313623 with the removal above.

**On WA: “It is up to UE implementation in which carrier the UE sends CSI reporting MAC CE”**

Not to confirm it (P1-2:12037:Huawei/NEC/ASUSTek/Qualcomm, P5:13178: Nokia, P2:12032:LG)

Proposal 1: To avoid misunderstanding of SL CSI reporting in SL CA, the SL CSI reporting MAC CE can only be transmitted in the carrier on which the corresponding SL CSI reporting is triggered, and such SL CSI reporting MAC CE restriction should be added in SL LCP.

[Ericsson]: RAN2 spec impact is not only LCP but also carrier selection if we go with proposal 1. It is also aligned with WID. [Nokia]: WID is not clear. Companies may have different understanding. With working assumption, if the UE has multiple carriers, it can delay much for a TX UE get CSI reporting for a carrier. [Huawei]: There would be latency issue with working assumption. Also, spec impact is not complicated. [Qualcomm]: Agree with Nokia and Huawei. Disagree with Ericsson. [OPPO]: For intra-band CA, assume CSI reporting delay is not real issue. [Qualcomm]: It is very critical restriction for CA. Even for intra-band CA, chancel condition can be very different. [Nokia]: Carrier selection may or may not need to be changed, e.g. whether we’ll have proactive carrier selection for CSI reporting MAC CE or we’ll have passive way to send CSI reporting MAC CE. [Lenovo, ZTE, Intel, Apple]: Nothing is broken with the current working assumption. Do not see real delay issue.

* Confirm the WA: OPPO, Ericsson, ZTE, Intel, Vivo, Apple, Lenovo, Nokia
* Not to confirm the WA (instead rely on LCP enhancement): Qualcomm, LG, Huawei, NEC, CATT

[Session chair]: Suggest to confirm the WA.

=> The WA is confirmed.

[Huawei]: Object that WA to be confirmed. [Lenovo, Intel]: In the procedure point of view, once WI is completed, we will not discuss any enhancement (e.g. LCP enhancement). Or if official objection is raised before WI is completed, we may not complete WI. [OPPO]: Propose to send LS to RAN1 for confirmation if some companies still have concern. Do not want to take a risk for WI completion. [Qualcomm, Huawei]: It is ok to send LS to RAN1 for confirmation.

=> Send LS to RAN1 to check if there is concern

**Agreements on CSI reporting MAC CE:**

1. Working assumption (It is up to UE implementation in which carrier the UE sends CSI reporting MAC CE) is confirmed.
* [AT124][114][V2X/SL] LS to RAN1 (OPPO)

 **Scope:** Prepare LS to RAN1. The LS will simply capture RAN2 agreement and ask feedback if there is concern.

 **Intended outcome:** LS in R2-2313621.

**Deadline:** 11/14 19:00 (in Chicago local time) => Completed.

R2-2313621 LS on Sidelink CSI Reporting MAC-CE for SL-CA LS out Rel-18 NR\_SL\_enh2 To:RAN1

=> Approved.

**NACK only based HARQ feedback:**

R2-2311944 Discussion on NACK-only for SL-U ZTE Corporation,Ericsson, Xiaomi, Nokia, Nokia Shanghai Bell, vivo, Sanechips discussion Rel-18 NR\_SL\_enh2

Proposal 1 For SL-U, RAN2 confirm NACK-only HARQ feedback cannot be supported for groupcast.

=> Agreed.

Proposal 2 RAN2 discuss following options:

Opton1: sends a LS to RAN1 to clarify that: regarding "NACK-only is not supported for SL-U", RAN2 prefer to leave it to RAN1 to handle "MAC layer select NACK-only feedback", i.e. no RAN2 spec change.

Option2: modify the current RAN2 specification to implement "NACK-only is not supported for SL-U", either in stage2 or stage3 spec.

[OPPO]: It is for (pre)configuration to avoid this problem in SL-U. If we go with option 2, it will give wrong interpretation AS will take care of the problem so (pre)configuration may not set appropriately. [Xiaomi]: MAC specifies which option is allowed for certain condition. Naturally we need some modification in MAC. [LG]: Share the view with OPPO. [Session chair]: To address OPPO/LG concern, what about P1: R2-2312177: IDC, i.e. adding simple note that a UE operating in SL unlicensed does not use negative-only acknowledgement for groupcast HARQ? [LG, OPPO]: Ok with that way. [Apple]: Alternatively, we can add simple sentence in 38.300. [ZTE]: With a note, if that happens what should be the UE behavior? We need to define the corresponding UE behavior. [IDC]: NW should make sure it for working well. [Qualcomm]: RAN1 spec already specified the related part, so alternatively MAC can refer the corresponding part. [Nokia]: NW may not be able to always configure enough PSFCH resources. It’s good to clarify the corresponding UE behavior. [Session chair]: Let’s check other companies’ views.

* Option1: add simple sentence in 38.300 (Apple, NEC, Qualcomm, LG, Nokia, Lenovo, IDC)
* Option2: add RAN1 spec reference in 38.321 (Qualcomm, Huawei)
* Option3: add (update) a note for the clarification into MAC (OPPO, LG, Xiaomi, IDC, Huawei, CATT, Ericsson, Vivo, Lenovo)
* Option4: add a normative corresponding UE behavior in MAC (ZTE, Ericsson, Nokia, Vivo, Xiaomi)

=> Option 3 is agreed. It is up to MAC CR rapporteur how to capture it as a note. In addition, simple normative sentence is also added to 38.300 (up to 38.300 CR rapporteur).

Proposal 3 If option2 is agreed in P2, If HARQ feedback is enabled for groupcast, if condition(i.e. both a group size and a member ID are provided by upper layers and the group size is not greater than the number of candidate PSFCH resources associated with this sidelink grant) is not met, UE set the HARQ feedback enabled/disabled indicator to disabled.

Proposal 4 If option2 is agreed in P2, If HARQ feedback is enabled for groupcast, if condition(i.e. both a group size and a member ID are provided by upper layers and the group size is not greater than the number of candidate PSFCH resources associated with this sidelink grant) is met, UE select positive-negative acknowledgement.

Proposal 5 If option2 is agreed in P2, RAN2 discuss two options of TP listed in Annex clause for specification change during CR phase.

P1: R2-2312177: IDC

Proposal 1: Add a NOTE to the MAC layer specification to clarify that a UE operating in SL unlicensed does not use negative-only acknowledgement for groupcast HARQ.

**Agreements on NACK only based HARQ feedback for GC:**

1. For SL-U, RAN2 confirms NACK-only HARQ feedback cannot be supported for groupcast.
2. Add (update) a note for the clarification into MAC. It is up to MAC CR rapporteur how to capture it as a note. Simple normative sentence is also added to 38.300 (up to 38.300 CR rapporteur).

**On WA: “Trigger resource (re)selection if all initial transmission and retransmission within MCSt fail due to LBT failure. It should provide minimum specification change.”**

=> The WA is confirmed.

P2: R2-2312177: IDC

“Trigger resource (re)selection if the initial transmission and retransmissions fail due to LBT failure on the resources within the MCSt that are associated with this sidelink process.”

[Xiaomi]: Although the intention is correct, we do not really need to modify the working assumption. Detailed wordings can be handled in CR implementation. [Qualcomm]: Some pending issue, e.g. whether to use reserved for other TB for retransmission, may impact on the newly added sentence.

P12: R2-2311792: OPPO

Proposal 12: For MCSt, during resource (re)selection, leave it to UE implementation, regarding whether to calculate HARQ retransmission number based on the number of MCSt transmissions, or the number of slot(s) within MCSt transmission.

=> Agreed.

**Agreements on MCSt resource (re)selection triggering:**

1. Working assumption (Trigger resource (re)selection if all initial transmission and retransmission within MCSt fail due to LBT failure. It should provide minimum specification change.) is confirmed.
2. For MCSt, during resource (re)selection, leave it to UE implementation, regarding whether to calculate HARQ retransmission number based on the number of MCSt transmissions, or the number of slot(s) within MCSt transmission.

**E-LCP Impact on MCSt:**

P3: R2-2312515: Ericsson

Proposal 3 RAN2 to withdraw below RAN2 agreement.

1. For the subsequent slots in MCSt, LCP procedure for COT initiating UE is enhanced: the LCHs with lower or equal CAPC than the CAPC value used for LBT check for the first TB.

=> Agreed.

[OPPO]: Shared the view with Ericsson. We assumed LBT check will be performed based on the first TB last meeting, but it seems RAN1 concluded LBT check will be performed even with the consideration of the following TBs. [Huawei]: RAN1 spec is based on when multiple TBs are ready, but RAN2 agreement also covers a case when multiple TBs are not ready. [CATT]: Agree with Ericsson and OPPO. [Lenovo]: Agree with Huawei. [Huawei]: It is better not to revert previous agreement only because it is redundant. [LG]: Agree with Huawei. [Xiaomi]: Agree with Ericsson.

[Vivo]: 2 slots, 2TBs, first TB in the first and second TB is the second slots (both with CAPC 1), for the third slot, with previous WA, the third slot can be used for another TB (with CAPC 2)? [OPPO]: It can be sent with RAN1 agreement. With combining both RAN1 and RAN2 agreement, it will propose more restriction. [Lenovo]: Understand RAN1 agreement and RAN2 agreement are almost same. [OPPO]: From UE point of view, we don’t want to implement same function in both PHY and MAC.

**Agreements on E-LCP impact on MCSt:**

1. RAN2 to withdraw below RAN2 agreement (For the subsequent slots in MCSt, LCP procedure for COT initiating UE is enhanced: the LCHs with lower or equal CAPC than the CAPC value used for LBT check for the first TB.).

**Carrier set determination for SCCH (for RRC connected UE):**

* Option 1: Leave it to UE implementation
* Option 2: For SCCH (specifically for SL-SRB1/2/3), for RRC\_CONNECTED case, dedicated-RRC provides per-LCH carrier set configuration, in alignment with STCH for RRC\_CONNECTED

[Xiaomi]: TX profile extension is not applied to SCCH. Prefer option 1. [ZTE]: SCCH is used for NAS. Although SCCH is pre-specified, pre-specification does not include carrier set configuration. Dedicated RRC configuration provides only carrier set configuration. [Qualcomm]: For UC, SCCH may be required even before NW configuration to the UE. Option 1 sounds better. [Huawei]: We already agreed CA/PDCP duplication is applied only after UC link is established and PC5-RRC reconfiguration is completed. How SCCH transmission in CA/PDCP can happen before NW configuration to the UE? Prefer to follow RRC connected UE’s general principle, i.e. based on NW configuration [Vivo]: Agree with Huawei. [Ericsson]: Ok with option 2. [OPPO]: What about UE follows NW configuration, but there is no carrier set in NW configuration, it’s up to UE implementation?

Option1: Qualcomm, Xiaomi, NEC, LG, OPPO, Apple, MediaTek,

Option2: Lenovo, ZTE, Ericsson, Nokia, Huawei, IDC, Samsung

=> NW configures, but if no carrier set in NW configuration, it’s up to UE implementation.

**Agreements on carrier set determination for SCCH (for RRC connected UE):**

1. NW configures carrier set, but if no carrier set in NW configuration, it’s up to UE implementation.

**Additional carrier determination for STCH in PDCP duplication (when TX profile extension indicates backward-compatible and if the UE decides to use PDCP duplication):**

* For RRC idle/inactive state: Leave it to UE implementation
* For RRC connected state: dedicated-RRC provides per-LCH carrier set configuration.

=> Agreed.

**Agreements on additional carrier determination for STCH in PDCP duplication:**

1. When TX profile extension indicates backward-compatible and if the UE decides to use PDCP duplication, a) Leave it to UE implementation for RRC idle/inactive state and b) Dedicated-RRC provides per-LCH carrier set configuration for RRC connected state.

**How TX UE decides the carrier set to be delivered to the RX UE?**

P3: R2-1311792: OPPO

Proposal 3: For open issue [1-6], for UC, it is up to Tx UE implementation to decide on the per link carrier configuration.

P6: R2-1312432: Xiaomi

Proposal 6: TX UE determines the carrier configuration as the intersection of the following frequencies.

• Frequencies configured by upper layer

• Frequencies configured by gNB

• Frequencies supported by the TX UE and RX UE

P1: R2-2311998: China Telecom

Proposal 1: For unicast, the TX UE determine the carrier set, to be delivered to the RX UE, from the (re)selected carriers by MAC (i.e. the carriers with the lowest CBR value among the carriers supported by both the TX UE and the RX UE).

[OPPO]: If we specify all factors/conditions, the specification becomes complicated. [Xiaomi]: Looks not so complicated to specify all three conditions. However, if no consensus, it is ok to leave it to UE implementation. [LG]: We can add a kind of note/simple sentence indicating it is up to UE implementation to determine the carrier configuration considering three factors by Xiaomi. [IDC]: If we go a note/simple sentence, it can also include China Telecom proposal. [Huawei, Nokia]: If it is up to UE implementation, we really need to include them? [LG, Xiaomi]: LTE SL CA has corresponding specification at least for two factors (upper layer configuration and gNB configuration)

=> Include simple normative text indicating TX UE determines the carrier configuration with the consideration of at least upper layer configuration, gNB configuration and both TX and RX UEs’ capabilities. Detailed wordings are relied on RRC CR rapporteur.

**Agreements on TX UE’s determination of carrier set to be delivered to the RX UE:**

1. Include simple normative text indicating TX UE determines the carrier configuration with the consideration of at least upper layer configuration, gNB configuration and both TX and RX UEs’ capabilities. Detailed wordings are relied on RRC CR rapporteur.

P3: R2-2312516: Ericsson

Proposal 3: For PDCP duplication, Tx UE doesn’t inform the carrier set to the Rx UE.

[NEC]: RAN2 already agreed TX UE includes carrier set information to RX UE. Seems proposal 3 is not aligned with the agreement. [ZTE]: Support the proposal. [Huawei]: Agree with NEC. It is applied to both CA and PDCP duplication

=> Not agreed.

**Including per-carrier RLF information in SUI?**

- Yes

- No

[Nokia]: If reported, what’s NW behaviour? NW will release that carrier in the carrier set for the concerned SL RB configuration? SL RB configuration is per QoS flow, not per L2 destination. [OPPO]: For the dedicated RRC configuration, since the UE already reported QoS flows – carrier mapping information in addition to L2 destination id, SL RB is considered as per destination also. [NEC]: Without NW reconfiguration, UE can just ignore the RLF concerned carrier. [OPPO]: For the case, e.g. two carriers are configured for CA, and one carrier has RLF, if we rely on UE autonomous behaviour, CA is not applied. Instead it will be good for NW to reconfigure other carriers to continue CA. [Lenovo, Huawei]: Agree with OPPO. Also, it is aligned with basic principle to follow NW configuration.

=> Yes.

* Option 1: Explicit information in SUI (P2: 12930: Qualcomm & others)
* Option 2: Updating flows-to-carriers mapping information by removing the carrier on which “carrier failure” has been detected (P4: 12516: Ericsson)

[Xiaomi]: If we rely on option 2, it may impact on other flows for different cast type. [Session chair]: Let’s see if there is majority companies’ views.

- Option 1: Xiaomi, Lenovo, Apple, Huawei, Nokia, IDC, LG, OPPO, Qualcomm

- Option 2: Ericsson, ZTE

=> Option 1 is agreed.

**SUI enhancement:**

1. Include per-carrier RLF information
2. Per-carrier RLF information is included as explicit information.

**Including TX profile extension in SUI?**

- Yes

- No

=> Yes

**SUI enhancement:**

1. Include TX profile extension information.

**Including secondary RLC channel configuration in SUI?**

P4: R2-2311792: OPPO

Proposal 4: For open issue [1-7], include the secondary RLC channel reporting into the SUI report.

=> Not agreed.

P4: R2-2312326: Apple

Proposal 4: Not pursue RX UE reporting the received configuration of additional RLC bearer from TX UE to NW via SUI.

[OPPO]: In legacy, SL-RLC-ModeIndication is reported by RX UE to avoid different RLC mode between TX UE and RX UE for bi-directional RLC AM. It is applied to both mode 1 and mode 2. [Apple, ZTE, Nokia, Qualcomm]: Do not see the need of the secondary RLC channel reporting into the SUI report. [Nokia]: Secondary leg should be same as the first leg. Why RX UE needs to report secondary leg RLC channel information to the gNB? [Session chair]: Any company supporting to include RLC channel reporting into the SUI? [OPPO, Huawei, LG]: Support OPPO proposal.

**Per-carrier CBR measurement configuration:**

P7: R2-2311792: OPPO

Proposal 7: Introduce frequency dimension (i.e. carrier index) for SL CBR measurement object configuration.

=> Agreed. How to capture in RRC will be discussed in CR implementation.

**Per-carrier CBR measurement configuration:**

1. Introduce frequency dimension (i.e. carrier index) for SL CBR measurement object configuration. How to capture it in RRC will be discussed in RRC CR implementation.

**SL carrier-specific failure:**

P8: R2-2312100: Lenovo

Proposal 8: RAN2 to agree on introducing a recovery mechanism for SL carrier failure, similar to the consistent LBT failure case. It is proposed to use a timer, e.g. sl-CarrierFailure-RecoveryTimer, which controls the recovery of a triggered SL carrier failure. The timer is started upon triggering a SL carrier failure. Upon expiry of the timer, UE cancels the triggered SL carrier failure.

[Xiaomi, LG, Vivo, IDC]: Support the proposal. [LG]: In addition, if carrier is recovered, it may need to be reconfigured to the peer UE. [OPPO]: Why RLF is related to the carrier? Assume RLF is not recovered as time passes. [Vivo]: It is just for cancellation. Otherwise when the carrier can be reconsidered for addition once it was released due to carrier failure? [Lenovo]: Yes, it is same principle as LBT failure case. [Ericsson]: Agree with OPPO. [Huawei]: We should leave it to UE implementation. UE can check w/o timer restriction. [Lenovo]: Once the carrier is released, it is not clear how UE can check it. Also, it doesn’t make a sense to re-add this carrier immediately once released. [IDC]: In legacy, we had only single carrier. But for multiple carriers, it’s good to have a way to determine until when the carrier stays in released. [NEC]: Not agree with proposal. It may impact on carrier selection procedure also. [Lenovo]: Carrier selection is among configured carriers, once the carrier is released, it is not considered, so no impact on carrier selection. [Nokia]: How does the NW configure the appropriate value? [Lenovo]: Same as C-LBT failure case. [Nokia]: Prefer leaving it to UE implementation. [OPPO]: If timer expires, does it mean recovered immediately? [OPPO]: Let’s assume multiple carriers and if timers are all running or not per carrier, we may not able to declare per link RLF in CA (because per link RLF is declared only when all carriers are failure, and whether all carriers are failed or not is dependent on each carrier timer operation). [Xiaomi]: We still have other mechanisms to declare per link RLF. What OPPO commented is not real problem. [Lenovo]: If we purely rely on UE implementation, it would be more risk, e.g. causing too early or too late per link RLF declaration. [Qualcomm]: Unlike Uu, for SL, there would be many factors to cause RLF in addition to movement, think some timer-based mechanism for determination would be beneficial. [Vivo]: If proposal is coupled with CBR, it would be beneficial.

- Supporting proposal 8: Lenovo, Qualcomm, IDC, Xiaomi, LG, ZTE, Vivo

- Not supporting proposal 8: CATT, NEC, Huawei, OPPO, Ericsson, Apple

=> No recovery mechanism for SL carrier failure.

**MCSt with multiple TBs:**

P9: R2-2312251: Huawei

Proposal 9: To handle the remaining slot(s) in case transmission is successful for one TB in MCSt (multiple TB case), two options can be considered:

 - Option 1: Still perform retransmission for this TB in the remaining slot(s)

- Option 2: Perform transmission for other TB in the remaining slot(s)

- Option3: Do nothing (i.e. no transmission)

[LG]: RAN1 agreed that selected SL grant cannot be used for other TB even though there is remaining slot. [Lenovo]: Why RAN1 excludes option 2? Any real technical issue? [Nokia]: Looking at RAN1 agreement, it is not clear whether LG is correct or not. [Xiaomi]: Option 1 is also not feasible since MAC flush the buffer when ACK is received. [ZTE]: We can introduce new flush condition to address Xiaomi concern. [Vivo]: We agreed we will keep the principle that SL resource is selected per SL process, so selected resource can be used only for that process. [Huawei, Apple]: Option3 is not aligned with RAN1 agreement. [Vivo]: Understand RAN1 agreement is for single TB. [Lenovo]: Is option 2 always? Then it will cause MAC complication, e.g. to make similar TB size according to the resource. Option2 can be applied only when available. [Nokia]: For option1, using remaining resource for retransmission which was already ACKed may be against regulation requirement. [IDC]: Fairness is guaranteed by maximum COT. [OPPO]: Suggest to follow majority companies’ views and if necessary, we can reconsider during CR maintenance. [ZTE]: Using all resources in MCST is applicable for both single TB and multiple TB cases. In that sense, option2 cannot guarantee it. We need option1. [LG]: That is applicable only to single TB case (in case of blind retransmissions).

Option1: Huawei, Ericsson, Xiaomi, NEC, Apple, ZTE, IDC, Vivo

Option2: Nokia, Qualcomm, Lenovo

Option3: LG

=> Option1 is agreed.

[Nokia]: Can option 2 be allowed also just for the case, e.g. when similar size TB is available? [Xiaomi]: With option2, we also need to consider CAPC restriction, which may impact LCP. It would be better to rely on option1 now.

**MCSt (multiple TB case):**

1. For remaining slot(s) in case transmission is successful for one TB in MCSt (multiple TB case), the UE still performs retransmission for this TB in the remaining slot(s).

P2: R2-2312100: Lenovo

Proposal 2: For MCSt with multiple TB case, retransmit TB associated with dropped transmission due to LBT failure on next available MCSt resource, if TB sizes matches.

[LG]: Isn’t proposal 2 same/similar to option2 in the previous discussion? Issue seems whether the resource within MCST for different TB is used or not. [Xiaomi]: It is not same as NR-U. In NR-U, all resources are controlled by NW, but for SL, it is UE autonomous behaviour. We may have issues later with the proposal. Seems it is optimization, which is not really essential. [Vivo, OPPO]: Agree with Xiaomi. In SL, there is fixed association between resource and SL resource. [Lenovo]: It is not true. Also for NR-U, it is fixed association.

=> Not introduce “For MCSt with multiple TB case, retransmit TB associated with dropped transmission due to LBT failure on next available MCSt resource, if TB sizes matches.”.

**MCSt (multiple TB case):**

1. Not introduce “For MCSt with multiple TB case, retransmit TB associated with dropped transmission due to LBT failure on next available MCSt resource, if TB sizes matches.”.

R2-2311792 Left issues on SL-CA and SL-U OPPO discussion Rel-18 NR\_SL\_enh2

R2-2311793 Discussion on R4-2317751 OPPO discussion Rel-18 NR\_SL\_enh2

R2-2311803 Discussion on open issues of SL-U vivo discussion

R2-2311804 Discussion on open issues of NR sidelink CA vivo discussion

R2-2311889 Discussion on open issues for SL CA enhancements Huawei, HiSilicon discussion Rel-18 NR\_SL\_enh2-Core Withdrawn

R2-2311998 Discussion on open issues for SL CA China Telecom discussion Rel-18 NR\_SL\_enh2

R2-2312037 Discussion on CSI reporting MAC CE for SL CA Huawei, HiSilicon, NEC, ASUSTek, Qualcomm discussion Rel-18 NR\_SL\_enh2-Core

R2-2312100 Remaining open issues Lenovo discussion Rel-18 NR\_SL\_enh2-Core

R2-2312177 Open Issues on SL-U InterDigital discussion Rel-18 NR\_SL\_enh2

R2-2312178 Open Issues on SL CA InterDigital discussion Rel-18 NR\_SL\_enh2

R2-2312216 Discussion on remaining issues of SL-U NEC discussion Rel-18 NR\_SL\_enh2

R2-2312217 Discussion on remaining issues of SL CA NEC discussion Rel-18 NR\_SL\_enh2

R2-2312251 Remaining issues for SL-U Huawei, HiSilicon discussion Rel-18 NR\_SL\_enh2

R2-2312325 Remaining issues on SL-U Apple discussion Rel-18 NR\_SL\_enh2

R2-2312326 Remaining issues on SL CA Apple discussion Rel-18 NR\_SL\_enh2

R2-2312431 Discussion on remaining issues on SL-U Xiaomi discussion

R2-2312432 Discussion on remaining issues on SL CA Xiaomi discussion

R2-2312514 Discussion on RAN4 LS R4-2317751 Ericsson discussion Rel-18 NR\_SL\_enh2

R2-2312515 Remaining aspects on SL-U Ericsson discussion Rel-18 NR\_SL\_enh2

R2-2312516 Aspects of SL CA Ericsson discussion Rel-18 NR\_SL\_enh2

R2-2312824 On SL-U open issues Nokia, Nokia Shanghai Bell discussion

R2-2312928 Discussion on remaining issues of SL-U Qualcomm India Pvt Ltd discussion

R2-2312930 Discussion on remaining issues of SL CA Qualcomm India Pvt Ltd discussion

R2-2312994 Discussion on left issues for SL CA enhancements Huawei, HiSilicon discussion Rel-18 NR\_SL\_enh2-Core

R2-2313025 7.15.2  Remaining issues for SL-U Samsung Electronics Co., Ltd discussion Rel-18 NR\_SL\_enh2

R2-2313026 7.15.2  Remaining issues for SL-CA Samsung Electronics Co., Ltd discussion Rel-18 NR\_SL\_enh2

R2-2313125 Open issues on SL-CA. Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh2 Withdrawn

R2-2313178 Open issues on SL-CA Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh2

R2-2313266 Discussion on remaining issues for SL-U LG Electronics France discussion NR\_SL\_enh2

R2-2312184 Draft LS on QoS Flow to Carrier Mapping InterDigital LS out Rel-18 NR\_SL\_enh2 To:SA2

R2-2313313 Discussion on PEMAX,CA for NR SL CA LG Electronics Inc. discussion NR\_SL\_enh2

R2-2312183 Stage 2 Open Issues InterDigital discussion Rel-18 NR\_SL\_enh2

R2-2312218 Discussion on terminology alignment for SL-U and SL CA NEC discussion Rel-18 NR\_SL\_enh2

### 7.15.3 Control plane

Includes further clarifications/changes based on running CRs, other RRC/Capability detailed stage 3 issues, e.g. based on open issue list provided by RRC/Capability CR rapporteur.

R2-2311805 Remaining issues for Control plane vivo discussion

R2-2311941 Discussion on remaining FFS issues on control plane for SL evo ZTE Corporation, Sanechips discussion Rel-18 NR\_SL\_enh2

R2-2312050 Remaining CP open issues for NR SL CA CATT discussion

R2-2312455 Stage-3 issues of control plane for NR SL Lenovo discussion Rel-18

* [AT124][111][V2X/SL] RRC details (OPPO)

 **Scope:** Discuss proposals in R2-2311805, R2-2311941, R2-2312050 and R2-2312455. Note not all proposals may be handled. It is up to rapporteur what proposals are discussed (e.g. agreeable proposals, essential discussion for 38.331, etc.). Note discussion should not be overlapped with the list of discussion in 7.15.2.

 **Intended outcome:** Discussion summary in R2-2313616.

**Deadline:** f2f offline discussion. Location and date/time will be announced via email. Come back in Thursday CB session. => Completed.

R2-2313616 Summary of [AT124][111][V2X/SL] RRC details (OPPO) OPPO discussion Rel-18

Proposal 1 Upper layer indicate Tx profile per-flow.

Proposal 2 Send LS to SA2 and CT1 to inform RAN2 decision on granularity of Tx Profile to AS-layer.

Proposal 3 The “legacy single carrier” in the NR SL CA context is the SL carrier configured by sl-FreqInfoList-r16/sl-FreqInfoToAddModList-r16.

Proposal 4 For STCH in SL unicast, an RRC\_IDLE/INACTIVE/OoC UE use PDCP duplication, in case the SL-DRB is configured with PDCP duplication in SIB/pre-configuration, and if peer UE’s capability supports it. How to capture that can be up to running-CR discussion.

Proposal 5 Rely on clause 16.9.Y of the Stage 2 TS 38.300 CR to clarify that “the additional frequency list for sidelink CA operation is only used for V2X case in this release”.

Proposal 6 Confirm trigger condition in running CR for QoS flow to carrier mapping information reporting, but remove “sl-FreqInfoList/”.

Proposal 7 If at least one QoS flow having Tx profile with value set to backwards compatible is mapped to the radio bearer, legacy carrier is used for transmission for this radio bearer, for RRC\_IDLE/RRC\_INACTIVE/OOC case. How to capture that is up to running-CR discussion.

=> All proposals are agreed.

**RRC details:**

1. Upper layer indicate Tx profile per-flow. Send LS to SA2 and CT1 to inform RAN2 decision on granularity of Tx Profile to AS-layer.
2. The “legacy single carrier” in the NR SL CA context is the SL carrier configured by sl-FreqInfoList-r16/sl-FreqInfoToAddModList-r16.
3. For STCH in SL unicast, an RRC\_IDLE/INACTIVE/OoC UE use PDCP duplication, in case the SL-DRB is configured with PDCP duplication in SIB/pre-configuration, and if peer UE’s capability supports it. How to capture that can be up to running-CR discussion.
4. Rely on clause 16.9.Y of the Stage 2 TS 38.300 CR to clarify that “the additional frequency list for sidelink CA operation is only used for V2X case in this release”.
5. Confirm trigger condition in running CR for QoS flow to carrier mapping information reporting, but remove “sl-FreqInfoList/”.
6. If at least one QoS flow having Tx profile with value set to backwards compatible is mapped to the radio bearer, legacy carrier is used for transmission for this radio bearer, for RRC\_IDLE/RRC\_INACTIVE/OOC case. How to capture that is up to running-CR discussion.
* [POST124][115][V2X/SL] LS to SA2/CT1 (Xiaomi)

 **Scope:** Prepare LS to SA2/CT1 to inform RAN2 decision on TX Profile.

 **Intended outcome:** LS in R2-2313622.

**Deadline:** Short email discussion

### 7.15.4 User plane

Includes further clarifications/changes based on running CRs, other MAC/PDCP detailed stage 3 issues, e.g. based on open issue list provided by MAC/PDCP CR rapporteur.

R2-2312049 Finalization on remaining Stage-3 issues in TS 38.323 running CR CATT, CICTCI, Xiaomi, Apple, OPPO, LG Electronics Inc., vivo, Huawei, HiSilicon, NEC, MediaTek Inc. discussion

Proposal 1: As in LTE SL CA, configuration of two RLC entities for an SL PDCP entity is only used for PDCP duplication, but not used to support any other functionality (e.g. split bearer and related operation).

=> Agreed.

Proposal 2: As in LTE SL PDCP duplication, if the transmitting PDCP entity is configured with PDCP duplication (i.e. configuration of two associated RLC entities), it shall activate and perform PDCP duplication until de-configuration/release of the additional RLC entity. No additional PDCP duplication activation/deactivation mechanism is supported.

=> Will follow LTE SL PDCP duplication principle

=> Agreed.

[Nokia]: In Uu PDCP duplication, when PDCP duplication is deactivated, the UE still can keep two legs for the remaining data in the buffer. With proposal 2, when PDCP duplication is released/deactivated, does the UE discard them? [CATT]: It’s up to UE implementation. [OPPO]: Running CR is to follow LTE SL PDCP duplication while Nokia proposal is to follow NR-Uu PDCP duplication. Both options are feasible and prefer to follow majority companies’ views.

**PDCP details:**

1. As in LTE SL CA, configuration of two RLC entities for an SL PDCP entity is only used for PDCP duplication, but not used to support any other functionality (e.g. split bearer and related operation).
2. As in LTE SL PDCP duplication, if the transmitting PDCP entity is configured with PDCP duplication (i.e. configuration of two associated RLC entities), it shall activate and perform PDCP duplication until de-configuration/release of the additional RLC entity. No additional PDCP duplication activation/deactivation mechanism is supported.

R2-2312194 Open issue on stage-3 MAC running CR LG Electronics France discussion NR\_SL\_enh2

R2-2311876 Left issue on stage-3 MAC running-CR OPPO discussion Rel-18 NR\_SL\_enh2

R2-2311942 Discussion on remaining FFS issues on user plane for SL evo ZTE Corporation, Sanechips discussion Rel-18 NR\_SL\_enh2

R2-2312051 Remaining UP open issues for SL-U CATT discussion

R2-2312179 MAC Stage 3 Issues InterDigital discussion Rel-18 NR\_SL\_enh2

R2-2312433 Further clarification on MAC CR Xiaomi discussion

R2-2312456 Stage-3 issues of user plane for NR SL Lenovo discussion Rel-18

R2-2312788 UP issues for SL-U and SL-CA Nokia, Nokia Shanghai Bell discussion

R2-2312933 Correction to LTE V2X and NR V2X Co-channel Qualcomm India Pvt Ltd CR Rel-18 38.321 17.6.0 1713 - B NR\_SL\_enh2

R2-2313027 MAC issues Samsung Electronics Co., Ltd discussion Rel-18 NR\_SL\_enh2

R2-2313154 Remaining issues on SL-U SHARP Corporation discussion Rel-18

* [AT124][112][V2X/SL] MAC details (LG)

 **Scope:** Discuss proposals in R2-2312194, R2-2311876, R2-2311942, R2-2312051, R2-2312179, R2-2312433, R2-2312456, R2-2312788, R2-2312933, R2-2313027, and R2-2313154. Note not all proposals may be handled. It is up to rapporteur what proposals are discussed (e.g. agreeable proposals, essential discussion for 38.321, etc.). Note discussion should not be overlapped with the list of discussion in 7.15.2.

 **Intended outcome:** Discussion summary in R2-2313617. Email approval.

**Deadline:** 11/16 19:00 (in Chicago local time) => Completed.

R2-2313617 Summary of [AT124][112][V2X/SL] MAC details (LG) LG discussion Rel-18 NR\_SL\_enh2

Proposal 1 (Option 1:6, Option 2: 7): SL DRX and IUC is not considered in resource selection of co-channel coexistence of LTE sidelink and NR sidelink until it becomes clear that SL DRX and IUC are supported in co-channel coexistence.

Proposal 3 (Option 1:2, Option 2: 11): RAN2 agrees to capture UE behavior in the MAC as a NOTE or simple normative text, ensuring that the Mode 2 UE transmits the SL LBT failure MAC CE only once.

Proposal 4 (Understanding 1:12, Understanding 2: 0): RAN2 confirm that UE cannot select any MCSt resources at all, even for the transmission of the “HARQ feedback disabled” TB, in a resource pool configured with PSFCH resource.

Proposal 8 (12, 0): RAN2 agree to add a description that excludes RB set resources where SL C-LBT failure was detected in the random selection part of clause 5.22.1.1.

Proposal 9 (7, 0): The per-LCH carrier set restriction is to be indicated from RRC-layer to MAC-layer, for LCP procedure.

=> All proposals are agreed.

**MAC details:**

1. SL DRX and IUC is not considered in resource selection of co-channel coexistence of LTE sidelink and NR sidelink until it becomes clear that SL DRX and IUC are supported in co-channel coexistence.
2. RAN2 agrees to capture UE behavior in the MAC as a NOTE or simple normative text, ensuring that the Mode 2 UE transmits the SL LBT failure MAC CE only once.
3. RAN2 confirm that UE cannot select any MCSt resources at all, even for the transmission of the “HARQ feedback disabled” TB, in a resource pool configured with PSFCH resource.
4. RAN2 agree to add a description that excludes RB set resources where SL C-LBT failure was detected in the random selection part of clause 5.22.1.1.
5. The per-LCH carrier set restriction is to be indicated from RRC-layer to MAC-layer, for LCP procedure.