3GPP TSG-RAN WG2 Meeting #117 electronic R2-220xxxx
Online, Febuary 21 – March 3, 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.

## List and Status of Offline Email Discussions

**[POST] Email discussion**

* [POST117-e][701][V2X/SL] 38.300 CR (InterDigital)

 **Scope:** Capture 38.300 related agreements (including this RAN2 meeting)

 **Intended outcome:** Agree 38.300 CR in R2-2203671. Email approval.

**Deadline:** Short email discussion

* [POST117-e][702][V2X/SL] 38.331 CR (Huawei)

 **Scope:** Capture 38.331 related agreements (including this RAN2 meeting)

 **Intended outcome:** Agree 38.331 CR in R2-2203672. Email approval.

**Deadline:** Short email discussion

* [POST117-e][703][V2X/SL] 38.321 CR (LG)

 **Scope:** Capture 38.321 related agreements (including this RAN2 meeting)

 **Intended outcome:** Agree 38.321 CR in R2-2203673. Email approval.

**Deadline:** Short email discussion

* [POST117-e][704][V2X/SL] 38.304 CR (ZTE)

 **Scope:** Capture 38.304 related agreements (including this RAN2 meeting)

 **Intended outcome:** Agree 38.304 CR in R2-2203674. Email approval.

**Deadline:** Short email discussion

* [POST117-e][710][V2X/SL] LS to SA2 (CATT)

 **Scope:** Prepare LS to SA2 to ask the identified question from the discussion on R2-2202361.

 **Intended outcome:** Approve LS in R2-2203691. Email approval.

**Deadline:** Short email discussion

* [POST117-e][711][V2X/SL] UL and SL prioritization (OPPO)

 **Scope:** Prepare the CR with the change above and discuss if the CR is aligned with RAN2 agreements well. Note we’ll focus on the CR and we’ll not have discussion regarding whether circular reference issue needs to be resolved or not.

 **Intended outcome:** CR in R2-2203692. Email approval.

**Deadline:** Short email discussion

* [POST117-e][713][V2X/SL] LS to SA2 (ZTE)

 **Scope:** Prepare LS to SA2 (including the identified questions and related RAN2 agreements from Rel-17 SL enhancement session)

 **Intended outcome:** Approve LS in R2-2203693

**Deadline:** Short email discussion

* [POST117-e][714][V2X/SL] LS to RAN1 (Vivo)

 **Scope:** Prepare LS to RAN1 including RAN2 understanding on the priority of IUC INFO/IUC REQ MAC CE and RAN2 preference to fix the priority of IUC INFO/IUC REQ MAC CE as “1”. Other question/information can be discussed and added if ok to companies.

 **Intended outcome:** Approve LS in R2-2203695

**Deadline:** Short email discussion

* [POST117-e][715][V2X/SL] TP for IUC INFO and IUC REQ MAC CE format (OPPO)

 **Scope:** Discuss IUC INFO and IUC REQ MAC CE format according to the latest RAN1 agreements on the fields and each field size that to be included in MAC CE. Provide 38.321 TP for IUC INFO and IUC REQ MAC CE format.

 **Intended outcome:** Endorse 38.321 TP for IUC INFO and IUC REQ MAC CE format for 38.321 CR in R2-2203696 and agree discussion summary in R2-2203697 (if needed). Agreed TP will be added into MAC CR in [POST117-e][703].

**Deadline:** Short email discussion (can start it now, end until 3.9 10:00am UTC)

**[AT] Email discussion**

* [AT117-e][705][V2X/SL] Introduction of NR sidelink enhancement capability (OPPO)

 **Scope:** Capture UE capability related agreements (including this RAN2 meeting)

 **Intended outcome:** Endorse 38.331 CR in R2-2203675, 38.306 CR in R2-2203676, and 36.331 CR in R2-2203677. Email approval.

**Deadline:** 3/3 10:00am UTC => Completed.

* [AT117-e][706][V2X/SL] TP for SL DRX active time indication to PHY and resource (re)selection in SL DRX (OPPO)

 **Scope:** Make a compromised TP with the consideration to avoid too much specification efforts and to clarify the UE behaviour enough.

 **Intended outcome:** Endorse TP in R2-2203678 and discussion summary in R2-2203679 (if needed)

**Deadline:** 2/28 13:00 UTC => Completed.

* [AT117-e][707][V2X/SL] Control plane corrections (Huawei)

 **Scope:** Discuss whether the proposed change in R2-2202714, R2-2203290, R2-2203286, R2-2203287, R2-2203288 and R2-2203289 are acceptable or not (including which proposed change is most acceptable to the companies if there are multiple candidate changes) and merge all acceptable changes.

 **Intended outcome:** Agree 38.331 rapporteur CR in R2-2203680 and individual 38.304 CR. Discussion summary in R2-2203681. Email approval.

**Deadline:** 2/28 13:00 UTC for discussion, 3/1 09:00 UTC for rapporteur’s CR and summary. => Completed

* [AT117-e][708][V2X/SL] User plane corrections (LG)

 **Scope:** Discuss whether the proposed change in R2-2202360, R2-2202534, R2-2202843, R2-2202947, R2-2202949, R2-2203479/R2-2203451, and R2-2202211 are acceptable or not (including which proposed change is most acceptable to the companies if there are multiple candidate changes), identify which changes can be merged into rapporteur CR (e.g. simple clarification, small error corrections, etc.) and merge them.

 **Intended outcome:** Agree 38.321 rapporteur CR in R2-2203682 and individual MAC/PDCP CR. Discussion summary in R2-2203683. Email approval.

**Deadline:** 2/28 13:00 UTC for discussion, 3/1 09:00 UTC for rapporteur’s CR and summary. => Completed.

* [AT117-e][709][V2X/SL] New power class capability (Xiaomi)

 **Scope:** Discuss wording issues (including adding definition of IntraBandPowerClass-r16) for R2-2202838 and prepare LS to RAN4 (including the identified questions during the discussion).

 **Intended outcome:** Agree 38.331 CR in R2-2203684 and approve LS to RAN4 in R2-2203686. Email approval.

**Deadline:** 3/3 10:00am UTC => Completed.

* [AT117-e][712][V2X/SL] Introduction of NR sidelink DRX (Huawei)

 **Scope:** Prepare TP to capture Rel-17 NR sidelink DRX into TR 37.985 and LS to RAN1 to ask merging the TP into 37.985 CR.

 **Intended outcome:** Agree 37.985 TP in R2-2203688 and approve LS in R2-2203689. Email approval.

**Deadline:** 3/3 10:00am UTC => Completed.

## Approved outgoing LSs

R2-2203686 Reply LS on Signalling of PC2 V2X intra-band concurrent operation LS out To:RAN4, Cc:RAN1

R2-2203687 Reply LS on Pemax for NR-V2X LS out To:RAN4 Cc:RAN1

R2-2203689 LS on TP to introduce Rel-17 SL DRX for TR 37.985 LS out To:RAN1

Note: Three more LSs out are supposed from the short email discussion [POST117-e][710][V2X/SL], [POST117-e][713][V2X/SL] and [POST117-e][714][V2X/SL].

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

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

## 6.2 NR V2X

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

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

Tdoc Limitation: See tdoc limitation for Agenda Item 6

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

### 6.2.1 General and Stage-2 corrections

Including incoming LSs, rapporteur inputs, etc.

R2-2202147 LS on Signalling of PC2 V2X intra-band concurrent operation (R4-2119992; contact: Xiaomi) RAN4 LS in Rel-16 To:RAN2

* Noted

R2-2203146 Discussion on RAN4 LS on new power class capability for NR-V2X Xiaomi discussion

Proposal 1: Both capabilities are optional. The corresponding FDD-TDD DIFF and FR1-FR2 DIFF is set as N/A.

* Agreed.

Proposal 2: A new parameter is introduced to indicate NR V2X power class in BandSidelink-r16.

* Agreed.

Proposal 3: Introduce the new BandCombinationList including new parameter indicating NR V2X intra-band concurrent operation power class capability as above.

* Agreed.

Proposal 5: Send reply LS to RAN4 to ask about the following two open issues,

 - (modified) Is it possible that the intra-band concurrent power class is higher than the sidelink or Uu power class that the UE supports on the individual band of this band combination? If possible, whether the latter determines maximum TX power available in each band.

 - Is there default PC for NR V2X power class? If yes, what is the default PC.

* Agreed (with adding RAN1 in Cc)

Proposal 4: Agree CRs in [2] and [3].

R2-2202838 Introduction of sidelink power class capability Xiaomi, Ericsson CR Rel-16 38.331 16.7.0 2912 - B 5G\_V2X\_NRSL-Core

[OPPO]: Definition of IntraBandPowerClass-r16 is absent.

* Add definition of IntraBandPowerClass-r16.

R2-2202839 Introduction of sidelink power class capability Xiaomi, Ericsson CR Rel-16 38.306 16.7.0 0688 - B 5G\_V2X\_NRSL-Core

* Change category to F
* Agreed with the change above in R2-2203694.

R2-2202196 Discussion on RAN4 LS on power class capability (R4-2119992) OPPO discussion Rel-16 5G\_V2X\_NRSL-Core

Proposal 1 (modified) For per-band capability for PC2, introduce that into Uu-RRC signalling, but not PC5-RRC signalling.

* Agreed.

Proposal 2 (modified) For per-BC capability for PC2, introduce that into Uu-RRC signalling as per-combination-of-Uu-and-PC5-BC, but not PC5-RRC signalling.

* Agreed.

R2-2202198 Introduction of NR V2X power class OPPO CR Rel-16 38.331 16.7.0 2876 - B 5G\_V2X\_NRSL-Core

R2-2202197 Introduction of NR V2X power class OPPO CR Rel-16 38.306 16.7.0 0673 - B 5G\_V2X\_NRSL-Core

R2-2202837 Draft Reply LS on new power class capability for NR-V2X Xiaomi LS out To:RAN4

* [AT117-e][709][V2X/SL] New power class capability (Xiaomi)

 **Scope:** Discuss wording issues (including adding definition of IntraBandPowerClass-r16) for R2-2202838 and prepare LS to RAN4 (including the identified questions during the discussion).

 **Intended outcome:** Agree 38.331 CR in R2-2203684 and approve LS to RAN4 in R2-2203686. Email approval.

**Deadline:** 3/3 10:00am UTC

R2-2203684 Introduction of sidelink power class capability indication Xiaomi CR Rel-16 38.331 16.7.0 2912 1 F 5G\_V2X\_NRSL-Core

* Agreed.

R2-2203686 Reply LS on Signalling of PC2 V2X intra-band concurrent operation LS out To:RAN4, Cc:RAN1

* Approved.

R2-2202148 LS on PEMAX for NR-V2X (R4-2120047; contact: Huawei, CATT) RAN4 LS in Rel-16 To:RAN1, RAN2

* Noted.

R2-2202715 Draft reply LS on Pemax for NR-V2X Huawei, HiSilicon, CATT LS out Rel-16 5G\_V2X\_NRSL-Core To:RAN4 Cc:RAN1

Answer 1:

As specified in TS 38.331, sl-maxTxPower is a conditional parameter pending on CBR and it is associated with a priority level of the PSSCH transmission and a CBR range while sl-MaxTransPower is the parameter used to indicate the maximum value of the UE’s sidelink transmission power on this resource pool.

Further, it should be noted that SL-TxPower is the value for sl-maxTxPower and it is not suitable to be considered as a reference parameter here.

Therefore, RAN2 think sl-MaxTransPower is the correct parameter to be used to fulfil said purpose.

* Agreed.

[Vivo]: Do we need to clarify that sl-MaxTransPower is not used for SL-SSB? [Huawei]: RAN4 is clear it is about power control of PSCCH/PSSCH. Vivo’s question seems not essential to respond.

 Answer 2:

(modified) In RAN2 specification, there is no restriction on the configuration of sl-MaxTransPower and p-max, and we can leave the final decision to RAN1.

* Agreed.

[Huawei]: RAN1 also agreed with option 1. [Ericsson, Qualcomm]: Option 3 makes more sense. [OPPO, ZTE, Intel, Qualcomm]: Leave the answer to RAN1.

* Approved with answer 1 and answer 2 above in R2-2203687.

R2-2202199 Discussion on RAN4 LS on P\_EMAX (R4-2120047) OPPO discussion Rel-16 5G\_V2X\_NRSL-Core

R2-2202470 Draft reply LS on PEMAX for NR-V2X Qualcomm Finland RFFE Oy LS out Rel-16 5G\_V2X\_NRSL-Core To:RAN4

R2-2203175 PEMAX for NR-V2X vivo discussion Rel-16

R2-2203173 Draft reply LS on PEMAX for NR-V2X vivo LS out Rel-16 To:RAN4 Cc:RAN1

R2-2203174 Clarification on SL power control parameter vivo CR Rel-16 38.331 16.7.0 2932 - F 5G\_V2X\_NRSL-Core

### 6.2.2 Control plane corrections

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

R2-2202723 Summary of RRC corrections Huawei, HiSilicon discussion Rel-16 5G\_V2X\_NRSL-Core Late

* [AT117-e][707][V2X/SL] Control plane corrections (Huawei)

 **Scope:** Discuss whether the proposed change in R2-2202714, R2-2203290, R2-2203286, R2-2203287, R2-2203288 and R2-2203289 are acceptable or not (including which proposed change is most acceptable to the companies if there are multiple candidate changes) and merge all acceptable changes.

 **Intended outcome:** Agree 38.331 rapporteur CR in R2-2203680 and individual 38.304 CR. Discussion summary in R2-2203681. Email approval.

**Deadline:** 2/28 13:00 UTC for discussion, 3/1 09:00 UTC for rapporteur’s CR and summary.

R2-2203681 Summary [AT117-e][707][V2X/SL] Control plane corrections (Huawei) Huawei, HiSilicon discussion Rel-16 5G\_V2X\_NRSL-Core

Proposal 1: The change on cN-Threshold in R2-2202714 is not agreed. Removal of description of SL-CBR is agreed.

Proposal 2: For the added field description of sl-BWP-Id, only the first sentence is agreed.

Proposal 3: It is agreed to remove description of SL-Thres-RSRP in the field description, and to add in the IE description of SL-Thres-RSRP-List.

Proposal 4: Editorial changes in R2-2202714 are agreed.

Proposal 5: The editorial change in R2-2203289 is agreed and it is to be implemented in the next revision of TS 38.304 without an actual CR.

Proposal 6: The change in CR R2-2203287, i.e., in SCCH configuration for SL-SRB 0/1/2/3, adding attribute “sl-HARQ-FeedbackEnabled” as “Undefined” with description as “Selected by the transmitting UE, up to UE implementation”, is agreed and merged in Rapporteur RRC CR.

* All proposals above are agreed.

R2-2203680 Miscellaneous corrections on TS 38.331 Huawei, HiSilicon, ZTE Corporation, Sanechips, vivo CR Rel-16 38.331 16.7.0 2903 1 F 5G\_V2X\_NRSL-Core

* Agreed.

R2-2202714 Miscelleneous CR on 38.331 Huawei, HiSilicon CR Rel-16 38.331 16.7.0 2903 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT117-e][707]

R2-2203290 Discussion on HARQ attribute of SL SRB ZTE Corporation, Sanechips,vivo discussion Rel-16

* Treated in offline discussion [AT117-e][707]

R2-2203286 Correction on HARQ attribute of SL SRB option1 ZTE Corporation, Sanechips, OPPO CR Rel-16 38.331 16.7.0 2935 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT117-e][707]

R2-2203287 Correction on HARQ attribute of SL SRB option2b ZTE Corporation, Sanechips,vivo CR Rel-16 38.331 16.7.0 2936 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT117-e][707]

R2-2203288 Correction on HARQ attribute of SL SRB option2a ZTE Corporation, Sanechips CR Rel-16 38.321 16.7.0 1213 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT117-e][707]

R2-2203289 Corrections on TS 38.304 ZTE Corporation, Sanechips CR Rel-16 38.304 16.7.0 0231 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT117-e][707]

### 6.2.3 User plane corrections

Including [Post116-e][710][V2X/SL]. This agenda item may utilize a summary document on MAC (LG).

R2-2202361 Summary [POST116-e][710][V2X/SL] PDCP/RLC Entity Maintenance for SL-SRBs (CATT) CATT report Rel-16 5G\_V2X\_NRSL-Core

(9/12)Proposal 1: At least for scenario 2/3(UE\_1 sends DCR by broadcast and UE\_2a sends DIRECT LINK AUTHENTICATION REQUEST/DIRECT LINK SECURITY MODE COMMAND message to UE\_1 by unicast), Rx UE(UE\_1) does not know the source layer-2 ID of Tx UE(UE\_2a).

[LG, Ericsson, Qualcomm]: This scenario is caused by PC5-S, so would like to check SA2 first before making a decision on the solution in RAN2. [Session chair]: Somewhat share the view with LG and Ericsson. If the UE knows the peer UE’s source id in some way in upper layer, then is the current specification ok or do we still need to similar enhancement for MAC filtering or PDCP/RLC entity establishment/release? [CATT]: Confirm the current RAN2 specification is ok if the UE knows the peer UE’s source id. [Session chair]: Suggest to send LS to SA2 and at the same time we can set the proposed solution as working assumption just for the case if SA2 confirms the UE cannot know the peer UE’s source id in the concerned scenarios. [CATT]: Ok with session chair’s suggestion.

* Send LS to SA2 to get confirmation that the UE cannot know the peer UE’s source ID for the concerned scenarios.

(9/12)Proposal 2: RAN2 confirmed that the Rx UE will not deliver the decoded MAC PDU to the disassembly and demultiplexing entity if it doesn’t know the source layer-2 ID used by the Tx UE.

(8/12)Proposal 3: RAN2 confirmed that the current description for the PDCP/RLC entities

establishment is unclear, some further clarification is needed.

(7/12)Proposal 4: RAN2 agree to resolve the mac filtering issue and PDCP/RLC entity establishment issue in AS layer.

Proposal 5: RAN2 agree to add one note in MAC spec to solve the mac filtering issue for at least scenario2/3. The below content can be further discussed during phase-III and submitted one CR to the incoming RAN2 meeting.

(38.321)NOTE: If this TB is associated to unicast and this TB is the first TB of a logical channel which associated LCID is equal to 0 or 1, and the DST field of the decoded MAC PDU subheader is equal to the 8 MSB of any of the Source Layer-2 ID(s) of the UE for which the 16 LSB are equal to the Destination ID in the corresponding SCI, deliver the decoded MAC PDU to the disassembly and demultiplexing entity.

Proposal 6: RAN2 agree to add one note in PDCP/RLC spec to solve the PDCP/RLC entity establishment issue for scenario2/3. The below content can be further discussed during phase-III and submitted one CR to the incoming RAN2 meeting.

(38.322)NOTE: The PDCP entity for NR sidelink communication for SL-SRB0 and SL-SRB1 is established as NR sidelink communication for groupcast and broadcast.

(38.323)NOTE: The RLC entity for NR sidelink communication for SL-SRB0 and SL-SRB1 is established as NR sidelink communication for groupcast and broadcast.

* Working assumption for proposal 2, 3, 4, 5 and 6 for the case if SA2 confirms the problem. For proposal 6, it is FFS whether we will have normative text or note.

[Ericsson]: For P6, prefers to have normative text rather than note. [Huawei]: Why SRB2 is not considered in P6? [CATT, Apple, OPPO]: First DCR message is sent over SRB0/SRB1.

* [POST117-e][710][V2X/SL] LS to SA2 (CATT)

 **Scope:** Prepare LS to SA2 to ask question above

 **Intended outcome:** Approve LS in R2-2203691. Email approval.

**Deadline:** Short email discussion

R2-2202362 Corrections on MAC filtering issue for the first unicast PC5-S signalling CATT draftCR Rel-16 38.321 16.7.0 F 5G\_V2X\_NRSL-Core

* Noted.

R2-2202363 Corrections on RLC entity establishment issue for the first unicast PC5-S signalling CATT draftCR Rel-16 38.322 16.2.0 F 5G\_V2X\_NRSL-Core

* Noted.

R2-2202364 Corrections on PDCP entity establishment issue for the first unicast PC5-S signalling CATT draftCR Rel-16 38.323 16.6.0 F 5G\_V2X\_NRSL-Core

* Noted.

R2-2202193 Correction on UL-SL prioritization\_option1 OPPO CR Rel-16 38.321 16.7.0 1187 - F 5G\_V2X\_NRSL-Core

* MAC CE prioritization part will be moved into 5.22.1.3.1a from 5.4.2.2

[Huawei]: Can we add MAC CE prioritization part into 5.22.1.3.1a? According to OPPO’s CR, it is covered in 5.4.2.2 while it is covered in 5.22.1.3.1a in Huawei’s CR. [OPPO]: Ok to move it to 5.22.1.3.1a. [Qualcomm, LG, Nokia, IDT, Ericsson]: Not convinced whether it is essential CR or not. Nothing is broken with the current specification. [ZTE, Apple, Samsung, Lenovo, Intel, MediaTek, Xiaomi, AsusTek, OPPO]: Support the CR to solve the circular reference issue. [LG]: With this CR, it seems not aligned with RAN2 agreement, i.e. to check UL prioritization with UL threshold first then to check SL prioritization based on the comparison with SL threshold. [Session chair]: That’s the interpretation to the current specification. However, RAN2 agreement was to compare both UL and SL with each threshold in order to determine SL prioritization (in NR SL). Not sure the order of comparison is really important, let’s have some time to check if CR violates RAN2 agreement.

* [AT117-e][711][V2X/SL] UL and SL prioritization (OPPO)

 **Scope:** Prepare the CR with the change above and discuss if the CR is aligned with RAN2 agreements well. Note we’ll focus on the CR and we’ll not have discussion regarding whether circular reference issue needs to be resolved or not.

 **Intended outcome:** CR in R2-2203692. Email approval.

**Deadline:** 3/3 10:00am UTC

R2-2202716 Clarification on the UL and NR SL prioritization Huawei, HiSilicon, Lenovo, Motorola Mobility CR Rel-16 38.321 16.7.0 1201 - F 5G\_V2X\_NRSL-Core

* Covered by the discussion of R2-2202193

R2-2202299 Correction on UL-SL prioritization\_option2 OPPO CR Rel-16 38.321 16.7.0 1188 - F 5G\_V2X\_NRSL-Core

* Covered by the discussion of R2-2202193

R2-2202956 Summary of MAC corrections LG Electronics France discussion 5G\_V2X\_NRSL-Core Late

* [AT117-e][708][V2X/SL] User plane corrections (LG)

 **Scope:** Discuss whether the proposed change in R2-2202360, R2-2202534, R2-2202843, R2-2202947, R2-2202949, R2-2203479/R2-2203451, and R2-2202211 are acceptable or not (including which proposed change is most acceptable to the companies if there are multiple candidate changes), identify which changes can be merged into rapporteur CR (e.g. simple clarification, small error corrections, etc.) and merge them.

 **Intended outcome:** Agree 38.321 rapporteur CR in R2-2203682 and individual MAC/PDCP CR. Discussion summary in R2-2203683. Email approval.

**Deadline:** 2/28 13:00 UTC for discussion, 3/1 09:00 UTC for rapporteur’s CR and summary.

R2-2203683 Summaryof [AT117-e][708][V2X/SL] User plane corrections (LG) LG Electronics France discussion 5G\_V2X\_NRSL-Core

Proposal 1: Correction of R2-2202360 is agreed.

Proposal 2: Correction of R2-2202534 is agreed.

Proposal 3: Correction (section 5.22.1.4.1.2) of R2-2202843 is agreed in R2-2204013.

Proposal 4: Correction of R2-2202949 is agreed.

Proposal 5: Correction of R2-2203479 needs to be revised and then agreed.

Proposal 6: Correction of R2-2202211 is not agreed.

Proposal 7: All agreed corrections are treated by individual CRs.

* All proposals above are agreed except proposal 5
* Discussion on the revision in R2-2203479 will be continued until 3/3 10:00am UTC (email approval whether revision can be agreed or not)

R2-2202360 Corrections on Unexpected SL-BSR Trigger for SL-CSI MAC CE CATT CR Rel-16 38.321 16.7.0 1189 - F 5G\_V2X\_NRSL-Core

* Agreed.

R2-2202534 Correction on the PDB derivation from LCH priority Apple, OPPO CR Rel-16 38.321 16.7.0 1193 - F 5G\_V2X\_NRSL-Core

* Agreed

R2-2202843 Correction on SL HARQ feedback indicator ASUSTeK CR Rel-17 38.321 16.7.0 1202 - F 5G\_V2X\_NRSL-Core

* Only correction in section 5.22.1.4.1.2 is agreed
* Agreed with the above change in R2-2204013

R2-2202949 Correction of RV indication Samsung CR Rel-16 38.321 16.7.0 1207 - F 5G\_V2X\_NRSL-Core

* Agreed.

R2-2203451 Correction on NACK reporting on PUCCH for NR SL Huawei, HiSilicon, OPPO CR Rel-16 38.321 16.7.0 1217 - F 5G\_V2X\_NRSL-Core

R2-2203479 Correction on NACK reporting on PUCCH for NR SL Huawei, HiSilicon, OPPO CR Rel-16 38.321 16.7.0 1218 - F 5G\_V2X\_NRSL-Core

R2-2203979 Correction on NACK reporting on PUCCH for NR SL Huawei, HiSilicon, OPPO CR Rel-16 38.321 16.7.0 1218 1 F 5G\_V2X\_NRSL-Core

* Agreed.

R2-2202211 Clarification on SDU type field usage for SL-SRB Samsung, Apple CR Rel-16 38.323 16.6.0 0084 - F 5G\_V2X\_NRSL-Core

* Treated in offline discussion [AT117-e][708]

R2-2202947 Rapporteur CR on 38.321 LG Electronics France (Rapporteur) CR Rel-16 38.321 16.7.0 1205 - F NR\_SL\_enh-Core Late

* Treated in offline discussion [AT117-e][708]

## 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

### 8.15.1 Organizational

Including incoming LSs, rapporteur inputs (e.g. running CR and/or open issues that were not covered by [POST] email discussion and need to be addressed), etc.

R2-2202478 Introduction of eSL in TS.38300 InterDigital (Rapporteur) CR Rel-17 38.300 16.8.0 0405 - B NR\_SL\_enh

* [POST117-e][701][V2X/SL] 38.300 CR (InterDigital)

 **Scope:** Capture 38.300 related agreements (including this RAN2 meeting)

 **Intended outcome:** Agree 38.300 CR in R2-2203671. Email approval.

**Deadline:** Short email discussion

R2-2202712 RRC running CR for NR Sidelink enhancements Huawei, HiSilicon CR Rel-17 38.331 16.7.0 2902 - F NR\_SL\_enh-Core Late

* [POST117-e][702][V2X/SL] 38.331 CR (Huawei)

 **Scope:** Capture 38.331 related agreements (including this RAN2 meeting)

 **Intended outcome:** Agree 38.331 CR in R2-2203672. Email approval.

**Deadline:** Short email discussion

R2-2202948 Running CR of TS 38.321 for Sidelink enhancement LG Electronics France CR Rel-17 38.321 16.7.0 1206 - F NR\_SL\_enh-Core Late

* [POST117-e][703][V2X/SL] 38.321 CR (LG)

 **Scope:** Capture 38.321 related agreements (including this RAN2 meeting)

 **Intended outcome:** Agree 38.321 CR in R2-2203673. Email approval.

**Deadline:** Short email discussion

R2-2203674 Introduction of NR Sidelink enhancements ZTE Corporation, Sanechips CR Rel-17 38.304 16.7.0 ???? - B NR\_SL\_enh-Core

* [POST117-e][704][V2X/SL] 38.304 CR (ZTE)

 **Scope:** Capture 38.304 related agreements (including this RAN2 meeting)

 **Intended outcome:** Agree 38.304 CR in R2-2203674. Email approval.

**Deadline:** Short email discussion

* [AT117-e][705][V2X/SL] Introduction of NR sidelink enhancement capability (OPPO)

 **Scope:** Capture UE capability related agreements (including this RAN2 meeting)

 **Intended outcome:** Endorse 38.331 CR in R2-2203675, 38.306 CR in R2-2203676, and 36.331 CR in R2-2203677. Email approval.

**Deadline:** 3/3 10:00am UTC

R2-2202204 Introduction of sidelink DRX capability OPPO CR Rel-17 38.331 16.7.0 2877 - B NR\_SL\_enh-Core Late

R2-2203675 Introduction of sidelink DRX capability OPPO CR Rel-17 38.331 16.7.0 2877 1 B NR\_SL\_enh-Core

* Endorsed and will be merged into Rel-17 UE capability CR

R2-2202205 Introduction of sidelink DRX capability OPPO CR Rel-17 38.306 16.7.0 0674 - B NR\_SL\_enh-Core Late

R2-2203676 Introduction of sidelink DRX capability OPPO CR Rel-17 38.306 16.7.0 0674 1 B NR\_SL\_enh-Core

* Endorsed and will be merged into Rel-17 UE capability CR

R2-2202391 Introduction of sidelink DRX capability OPPO CR Rel-17 36.331 16.7.0 4758 - B NR\_SL\_enh-Core

* Not needed.
* [AT117-e][712][V2X/SL] Introduction of NR sidelink DRX (Huawei)

 **Scope:** Prepare TP to capture Rel-17 NR sidelink DRX into TR 37.985 and LS to RAN1 to ask merging the TP into 37.985 CR.

 **Intended outcome:** Agree 37.985 TP in R2-2203688 and approve LS in R2-2203689. Email approval.

**Deadline:** 3/3 10:00am UTC

R2-2203688 Draft CR to introduce Rel-17 sidelink DRX for TR 37.985 Huawei, HiSilicon draftCR Rel-17 37.985 17.0.0 NR\_SL\_enh-Core

* Agreed and will be attached into the LS to RAN1 in R2-2203689

R2-2203689 LS on TP to introduce Rel-17 SL DRX for TR 37.985 LS out To:RAN1

* Approved.

R2-2202474 Rapporteur Inputs on Stage 2 Open Issues InterDigital (Rapporteur) discussion Rel-17 NR\_SL\_enh-Core

[Session chair]: Ask if the WI can be closed from RAN2 perspective?

* WI can be closed from RAN2 perspective

[Ericsson]: Remaining open issue should be well maintained. Does SR contain open issues for WI completion? [OPPO]: It depends on how much critical the remaining open issue is, and WI rapporteur will evaluate it. [LG]: If open issue is critical not to complete WI, SR should include it. Otherwise SR does not include it for WI completion and maintenance of open issue can be done in many other ways (not by SR). [OPPO, Qualcomm, CATT, Huawei, LG, InterDigital, Vivo, Samsung, Intel, MediaTek]: Supports WI completion. [Vivo]: Maintaining open issue is common for all Rel-17 WIs.

### 8.15.2 SL DRX

Including [POST116bis-e][705].

R2-2202203 Summary of [POST116bis-e][705][V2X/SL] Open issues on SL DRX (OPPO) OPPO report Rel-17 NR\_SL\_enh-Core Late

Unanimous

Recommendation 2.1.1-1 [15/15]: The default SL DRX configuration for BC/GC [(including at least DRX cycle, start offset and on-duration timer)] can be used for both BC-based and UC-based DCR message.

Recommendation 2.1.2-1a [17/17]: RAN2 needs to handle different scenarios where gNB supports or not supports SL DRX.

Recommendation 2.1.2-2a [17/17]: For gNB supporting SL-DRX, Tx-UE report assistance information only in mode-1.

Recommendation 2.1.2-2d [16/16]: For gNB not supporting SL-DRX, Tx-UE does not report assistance information or DRX configuration reject information, and Rx-UE does not report DRX configuration information for UC or QoS information for GC/BC.

Recommendation 2.1.2-3a [16/16]: For DRX configuration report by Rx-UE, Include DRX parameter(s) of 1) SL DRX cycle length, 2) SL DRX start offset, and 3) SL DRX on-duration timer length.

Recommendation 2.3.2-1: For mode-1 DG [14/14] and mode-2 grant [13/13], if the initial transmission occasion was dropped due to no Rx-UE in DRX active time, TX-UE can use re-transmission occasion for initial transmission.

* All recommendations 2.1.1-1, 2.1.2-1a, 2.1.2-2a, 2.1.2-2d, 2.1.2-3a, and 2.3.2-1 are agreed.

>90% Supporting Ratio (= only 1 objection)

Recommendation 2.1.2-1b [16/17]: gNB notify supporting SL-DRX based on the presence of SL-DRX configuration for GC/BC in SIB12.

Recommendation 2.3.1-2c [16/17]: For resource pool without PSFCH, sl-drx-HARQ-RTT-Timer starts in the slot following the end of PSSCH transmission (i.e., currently received PSSCH).

Recommendation 2.3.1-5 [6/7]: the conclusion for “sl-PUCCH-Config is not configured” also applied to “sl-PUCCH-Config is configured but PUCCH resource is not scheduled”

Recommendation 2.3.4-2 [15/16]: (modified) For Uu-DRX for SL operation, define it as optional per-UE capability, with capability bits in Uu-RRC, with neither FR1-FR2 nor FDD-TDD differentiation.

* All recommendations 2.1.2-1b, 2.3.1-2c, 2.3.1-5, and 2.3.4-2 are agreed.

For recommendation 2.1.2-1b:

[Vivo]: Should we consider the case where the gNB only supports SL DRX for UC? [OPPO, Xiaomi, Ericsson, Nokia, Qualcomm]: It is assumed the gNB supports all cast types if supports SL DRX. [Ericsson]: For the UE capability discussion, majority companies supported single capability bit for all cast types. Considering the UE capability discussion, it is also reasonable the gNB supports all cast types if supports SL DRX.

> 80% Supporting Ratio (= only 2/3 objections)

Recommendation 2.1.2-2b [16/18]: For gNB supporting SL-DRX, Tx-UE report DRX configuration reject information only in mode-1.

* Agreed.

Recommendation 2.2-2 [14/16]: As in LTE, the mapping from Destination L2 ID to Tx Profile is configured in the gNB, i.e., no need for UE to report the mapping.

* For GC, we will check with SA2 whether the mapping from L2 id to TX profile is feasible in the gNB (like what we did in LTE).
* Working assumption: no additional RAN2 work if SA2 confirms it’s feasible.

[Huawei]: For GC, group id is created randomly by the UE when group is established so it is not clear how the gNB can have the mapping information between L2 id and TX profile. For BC, the recommendation is ok. [OPPO]: For GC, group id can be provided by the upper layer or by some kind of hash function. If it is provided by the hash function, we need to check with SA2 whether the recommendation is feasible or not. [Huawei]: If the UE creates group id, there is no common rule that can be shared between the UE and the gNB because it is random hash function. L2 group id is dynamically allocated whenever group is established and there is no preconfigured range of L2 group id to the corresponding service type.

Recommendation 2.3.1-2a [14/17]: (modified) For resource pool with PSFCH, for FB-disabled case, if SCI does not indicate re-transmission resource, sl-drx-HARQ-RTT-Timer starts in the slot following the end of PSFCH resource.

* Agreed.

Recommendation 2.3.1-2b [15/17]: For resource pool with PSFCH, for FB-disabled case, if SCI indicates re-transmission resource, sl-drx-HARQ-RTT-Timer starts in the slot following the end of PSSCH transmission (i.e., currently received PSSCH).

* Agreed.

Recommendation 2.3.1-3a [15/17]: For resource pool without PSFCH, if SCI does not indicate re-transmission resource, allow sl-drx-HARQ-RTT-Timer timer length configuration different from the value for resource pool with PSFCH. The value of the RTT timer length (fixed to be zero, or allow non-zero value configuration as well) is FFS.

* Agreed.

Recommendation 2.3.1-3b [15/17]: For sl-drx-RetransmissionTimer, a single value is sufficient to cover all cases (FB-enable/disable, PSFCH configured/not-configured).

* Agreed.

Recommendation 2.3.1-4 [14/17]: For resource pool without PSFCH, if sl-PUCCH-Config is not configured, support drx-HARQ-RTT-TimerSL with a fixed value as zero.

* Agreed.

[OPPO]: The original question was whether to support RTT or not in that case, then there were some concerns. However, the companies who expressed concern were ok to support RTT with a fixed value as zero as a compromise.

Recommendation 2.3.4-1a/b/c: For SL-DRX over PC5 interface, define a single capability bit covering all cast types [14/16] and both Tx and Rx sides [16/16].

* Agreed.

> 70% Supporting Ratio (= only 4/5 objections)

Recommendation 2.1.1-6 [12/17]: No need to capture in spec the condition for Rx-UE to reject a DRX configuration.

* Agreed.

Recommendation 2.2-1a [13/17]: (modified) Check with SA2 whether a same L2 ID may associate with multiple Tx profiles, and thus may associate with both DRX-based Tx profile and non-DRX based Tx profile in Rel-16. Then also check with SA2 if feasible for Rel-17 SL DRX operation, L2 id is only associated with either DRX-based TX profile(s) or non-DRX based TX profile(s).

* Agreed.
* DCR issue raised by ZTE can be discussed as part of LS preparation. If the question is valid to companies, we’re also adding that question otherwise we’re not adding it.
* Working assumption: no additional RAN2 work if SA2 confirms it’s feasible for Rel-17 SL DRX operation, L2 id is only associated with either DRX-based TX profile(s) or non-DRX based TX profile(s).

[Session chair]: From RAN2 point of view, can we also express RAN2 preference, e.g. checking if feasible to avoid the problematic case, e.g. for Rel-17 SL DRX operation, L2 id is only associated with either DRX-based TX profile(s) or non-DRX based TX profile(s). [Huawei, InterDigital, OPPO, ZTE, CATT]: Agree with session chair. [ZTE]: Should we also include the question “How does the UE know the associated TX profile when DCR is sent?” in the LS to SA2? [OPPO]: Do not see a real related issue to ZTE question. Seems no need to include this question to the LS. [Qualcomm, OPPO, Lenovo]: Ok with the modification. [Qualcomm, Huawei]: Checking with SA2 guy, in Rel-16, association with multiple TX profiles is allowed, but if RAN2 indicates RAN2 preference, SA2 will consider the preference for Rel-17 SL DRX operation. [Session chair]: Can we set “no additional RAN2 work if SA2 confirms it’s feasible for Rel-17 SL DRX operation, L2 id is only associated with either DRX-based TX profile(s) or non-DRX based TX profile(s)” as working assumption? [Ericsson]: It’s early to set any working assumption before SA2 confirms it. [OPPO, Lenovo, InterDigital, Intel, Huawei, Nokia, CATT, Samsung, Vivo]: Support the working assumption. [Ericsson]: Can accept it if majority companies want.

Recommendation 2.3.1-1 [12/17]: For unicast, sl-drx-RetransmissionTimer is not started after expiry of sl-drx-HARQ-RTT-Timer when the PSFCH of ACK transmission is dropped.

* Agreed.

[Vivo, Huawei]: With this recommendation, if TX UE runs RTT and retransmission timer and the TX UE schedules new transmission, the packet drop can happen. [Ericsson, OPPO, ZTE, Intel]: We agreed UE is allowed to send initial transmission during any active time (including retransmission timer) for UC, but it doesn’t mean the UE should do that. Whether to do that or not is up to UE implementation. Smart UE implementation may not do that (due to possible mismatch between UEs). Ok to follow majority companies’ view. [Qualcomm]: We may consider adding some note to avoid inter-operation issue between different vendors. [OPPO]: First let’s consolidate the proposal itself.

Recommendation 2.3.3-3a [12/16] for resource reselection due to pre-emption, the reselected resource should not be earlier than the pre-empted resource in time domain.

* Agreed.

[Ericsson, Qualcomm, Nokia, LG, InterDigital, ZTE]: No LS is needed. [Lenovo, Vivo, Huawei, Xiaomi]: LS is needed. [Ericsson, ZTE]: According to our RAN1, it can be handled by UE implementation. [LG, InterDigital]: Although pre-emption is RAN1 scope, resource selection is RAN2 scope. RAN2 needs to discuss how to implement this recommendation in MAC.

For-further-discussion, with > 60% supporting ratio

Recommendation 2.1.1-2 [10/16]: (modified) For messages delivery after PC5-S DCR message until and including PC5-RRC RRCReconfigurationSidelink message including initial DRX configuration, UE remains in active. FFS on PC5-RRC RRCReconfigurationSidelinkComplete.

* Agreed.

[Apple]: Is the recommendation applied to both directions? What does “DRX is not applied” mean? We may have better wording, e.g. “remain in active” [Vivo, LG]: With this recommendation, we need more specification efforts, e.g. handling of “FFS on PC5-RRC RRCReconfigurationSidelinkComplete”. [Qualcomm]: If RX UE is Rel-16 UE, the RX UE cannot know the default SL DRX active time. For backward compatibility (e.g. Rel-17 TX UE and Rel-16 RX UE), the recommendation needs to be supported.

Recommendation 2.1.1-3a: Not include inactivity timer [11/16], HARQ RTT timer [12/14] or re-transmission timer [12/14] in assistance information from Rx UE to Tx UE.

* Not include HARQ RTT timer and retransmission timer in assistance information from RX UE to TX UE. FFS on inactivity timer.

Recommendation 2.1.1-3b [11/17]: (modified) In assistance information from Rx UE to Tx UE, multiple DRX settings can be included (detailed signalling format can be left to RRC running-CR discussion).

* Agreed.

[Huawei]: “multiple DRX setting” would be better wording.

Recommendation 2.1.1-5b [11/16]: Add a NOTE that Tx-UE derives the DRX setting by taking assistance information into account (detailed wording left to RRC running-CR discussion).

* Agreed.

Recommendation 2.3.2-3 [11/16]: If sl-PUCCH-Config is not configured, for both PSFCH configured and not-configured cases, drx-HARQ-RTT-TimerSL starts at the first symbol after end of PDCCH resource.

* Agreed.

[Huawei]: This option is not good since it can bring the UE power consumption or scheduling restriction in network side dependent on the length of HARQ RTT. [Qualcomm]: RTT should not be started after the reception of DCI due to conflict with inactivity timer. [Lenovo]: Huawei has a valid point but ok with following majority companies’ views [Session chair]: Let’s check companies’ views with the consideration of Huawei comment. [LG, Ericsson]: With option 3, there can be also some restriction in network scheduling point of view, e.g. retransmission resource cannot be immediately scheduled after the last PSSCH resource.

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

 Xiaomi, Intel, LG, OPPO, Ericsson, MediaTek, Nokia, Vivo, ZTE (9)

* Option-3: at the first symbol after end of last PSSCH resource scheduled

 Huawei, Qualcomm, InterDigital, Apple (4)

Recommendation 2.3.3-4 [11/18], If there is no SL grant in the SL DRX active time of the destination that has data to be sent, trigger resource reselection.

* Set it as working assumption

[Vivo, LG, Xiaomi]: To RAN1 status, most likely at least some subsets of resources corresponding to SL DRX active time will be provided to MAC. However, it’s ok to set it as working assumption now.

For further discussion, with <60% supporting ratio, or with FFS-point

Initiation condition for assistance-information

Recommendation 2.1.1-4: (modified) The delivery of assistance information can be initiated if peer-UE is capable of sidelink DRX [14/17], the assistance information has not been sent previously if the RX UE is interested in sending assistance information.

* Agreed

[LG]: RAN2 agreed if TX UE doesn’t receive any assistance information, it is interpreted as any DRX configuration is ok to RX UE. [Xiaomi]: Second condition is not useful since it blocks the RX UE sends assistance information even when the information is updated. [ZTE]: Assistance information is not mandatory but with the second condition, it sounds mandatory. [Apple, Qualcomm]: It is “can” not “shall”, it is still optional. [OPPO]: To address the concern, it is proposed to add “if the RX UE is interested in sending assistance information” [Lenovo]: Support the proposal.

DRX configuration rejection

[Session chair]: We agreed TX UE determines SL DRX configuration taking the received UE assistance information from RX UE into account. Then we also agreed RX UE can indicate rejection of SL DRX configuration. Two inconsistent decisions may bring several issues (especially possible deadlock of SL DRX configuration). If deadlock situation happens for the initial SL configuration (including SL DRX configuration), it can also block SL communication. Should we revisit two agreements (e.g. no real rejection of SL DRX configuration from RX UE, e.g. RX UE can indicate “SL DRX configuration is not preferred” but still apply the configured SL DRX) or are we going to introduce further enhancement to avoid any possible deadlock issue with keeping two agreements? [Huawei, Intel, Samsung, OPPO]: Share the chair’s concern. RX UE still applies to the configured SL DRX although it’s not preferred one. Otherwise we can have deadlock situation. [Lenovo, Nokia]: Prefer keeping reject and the default SL DRX configuration (when rejected) would be no SL DRX is used. With “No SL DRX is used”, it can address the concern when reject happens for the initial SL configuration (including SL DRX configuration). [Qualcomm, ZTE, Ericsson]: Want to define default SL DRX configuration when rejected as the previously configured SL DRX if reject happens to non-initial SL DRX configuration case. [Session chair]: Let’s see companies’ views.

* Option 1: Revisit the decision of reject from RX UE (e.g. RX UE still apply the configured SL DRX and instead of reject, the RX UE can indicate the configured SL DRX is not preferred)
* Option 2a: Keep RX UE’s reject option for SL DRX configuration sent by TX UE. If reject, default SL DRX configuration is no UC SL DRX.
* Option 2b: Keep RX UE’s reject option for SL DRX configuration sent by TX UE. If reject happens for initial SL DRX configuration, default SL DRX configuration is no UC SL DRX. If reject happens for non-initial SL DRX configuration, default SL DRX configuration is previously configured SL DRX configuration.

Option1: Huawei, Samsung, OPPO, MediaTek, Intel (5)

Option2a: Nokia, Ericsson, InterDigital, CATT, Apple, Xiaomi, OPPO (7)

Option2b: LG, Vivo, Lenovo, ZTE, Apple, InterDigital, Qualcomm, Intel, NEC (9)

* Option2a: Keep RX UE’s reject option for SL DRX configuration sent by TX UE. If reject happens for initial SL DRX configuration, default SL DRX configuration is no UC SL DRX. FFS on the default SL DRX configuration for non-initial SL DRX configuration.

[Session chair]: Then what about any possible deadlock issue? How to handle it? Are we going to introduce additional enhancement to avoid any possible deadlock issue in Rel-17? [Xiaomi]: No enhancement in Rel-17 (due to lack of time) [Session chair]: Any concern from not introducing an enhancement to avoid deadlock issue? Seems ok to companies. [LG]: What does “no UC SL DRX” mean? [Session chair]: No UC SL DRX means SL DRX is not applied to UC.

* No enhancement to resolve any deadlock issue in Rel-17

Recommendation 2.1.1-8 [8/9]: After rejecting the DRX configuration, Rx-UE uses the prior SL DRX configuration (included in the latest RRCReconfigurationSidelink message which has been accepted by Rx UE) until receiving a new SL DRX configuration. [?/?] RAN2 further discuss the case where there was no previous RRCReconfigurationSidelink message which included DRX configuration accepted by Rx UE.

* Treated by earlier discussion

Recommendation 2.1.1-7: RAN2 discuss whether Rx-UE use the message of RRCReconfigurationCompleteSidelink [7/15] or RRCReconfigurationFailureSidelink [8/15] to reject a DRX configuration. If RRCReconfigurationFailureSidelink is used, RAN2 discuss whether all configurations to be rejected or just the DRX configuration to be rejected.

Recommendation 2.1.1-7a/7b [15/17]: Regardless of whether message of RRCReconfigurationCompleteSidelink or RRCReconfigurationFailureSidelink to be used introduce an indication in the message for the DRX configuration rejection.

* 2.1.1-7 and 2.1.1-7a/7b are skipped.

DRX in mode-1

Recommendation 2.1.2-2e [?/15]: RAN2 further discuss how to handle the SL-DRX configuration if gNB is incapable of SL-DRX while the Tx-UE is in mode-1.

* Skipped.

Recommendation 2.1.2-4 [10/17]: For Tx-UE in mode-1, SL-DRX command MAC-CE can be used, and RAN2 not pursue further optimization for it.

* Agreed.

[Ericsson]: Companies supporting 2.1.2-4 do not consider it is critical problem if the grant is dropped? [OPPO]: SL-DRX command MAC CE is generated only when the UE has no data in the buffer. NW can have similar estimation based on BSR. However, the intention is not to specify it, we can leave it to smart UE implementation. [LG, Intel, Apple, Vivo, Huawei]: Support the proposal.

Recommendation 2.3.2-2: For mode-1 re-transmission grant, if the re-transmission grant is dropped due to no Rx-UE in active time, Tx-UE report NACK to network via PUCCH [9/15, 8/14].

* Set the recommendation as working assumption

Tx-profile

Recommendation 2.2-3a: (modified) The Tx profile should include at least the information of DRX support or not [16/16].

* Agreed
* Include this agreement into the LS to SA2

[Ericsson, Qualcomm, Huawei]: Do not see the real need to include release information. [OPPO]: Inclusion of release information would be safer option to make sure nothing is missed.

DRX capability

Recommendation 2.3.4-1d/e/f/g/h/i [?/16]: (modified) For SL-DRX over PC5 interface, define it as optional per-UE capability, with capability bits in PC5-RRC, with neither FR1-FR2 nor FDD-TDD differentiation, and with capability bits in Uu-RRC, with no FR1-FR2 or FDD-TDD differentiation.

* Agreed.

[Session chair]: What does “conditionally mandatory” mean? During email discussion, for GC and BC, it is conditionally mandatory if the DRX is supported for UC, but now we have single capability bit for all cast types, then optional should be more correct? [Apple, ZTE, OPPO, Ericsson]: Yes, it should be optional.

NOTE-vs-Normative-text for DRX-vs-resource-(re)selection

Recommendation 2.3.3-1a [17/18]: Capture the “MAC layer provides active-time to PHY layer” in normative text as baseline (further discussion on the wording can be done in running-CR discussion).

Recommendation 2.3.3-1b [?/15]: For the step of MAC layer providing active-time to PHY layer, RAN2 further discuss whether/how to specify the left details besides the normative text of Recommendation 2.3.3-1a, e.g., via either a NOTE or a normative text (a TP is to be provided for either case).

Recommendation 2.3.3-2a [10/17]: Capture resource selection “within SL DRX Active time where SL DRX timers that are running and will be running in the future” in normative text as baseline (further discussion on the wording can be done in running-CR discussion).

Recommendation 2.3.3-2b [?/16]: For the step of MAC layer perform resource (re)selection based on the resource set reported by PHY layer, RAN2 further discuss the issue on resources (re)selection for initial/re-transmission for group-cast. Other than that, RAN2 further discuss whether/how to specify the left details besides the normative text of Recommendation 2.3.3-2a, e.g., via either a NOTE or a normative text (a TP is to be provided for either case).

* [AT117-e][706][V2X/SL] TP for SL DRX active time indication to PHY and resource (re)selection in SL DRX (OPPO)

 **Scope:** Make a compromised TP with the consideration to avoid too much specification efforts and to clarify the UE behaviour enough.

 **Intended outcome:** Endorse TP in R2-2203678 and discussion summary in R2-2203679 (if needed)

**Deadline:** 2/28 13:00 UTC

Agreement on SL DRX open issues:

1: The default SL DRX configuration for BC/GC [(including at least DRX cycle, start offset and on-duration timer)] can be used for both BC-based and UC-based DCR message.

2: RAN2 needs to handle different scenarios where gNB supports or not supports SL DRX.

3: For gNB supporting SL-DRX, Tx-UE report assistance information only in mode-1.

4: For gNB not supporting SL-DRX, Tx-UE does not report assistance information or DRX configuration reject information, and Rx-UE does not report DRX configuration information for UC or QoS information for GC/BC.

5: For DRX configuration report by Rx-UE, Include DRX parameter(s) of 1) SL DRX cycle length, 2) SL DRX start offset, and 3) SL DRX on-duration timer length.

6: For mode-1 DG [14/14] and mode-2 grant [13/13], if the initial transmission occasion was dropped due to no Rx-UE in DRX active time, TX-UE can use re-transmission occasion for initial transmission.

7: gNB notify supporting SL-DRX based on the presence of SL-DRX configuration for GC/BC in SIB12.

8: For resource pool without PSFCH, sl-drx-HARQ-RTT-Timer starts in the slot following the end of PSSCH transmission (i.e., currently received PSSCH).

9: The conclusion for “sl-PUCCH-Config is not configured” also applied to “sl-PUCCH-Config is configured but PUCCH resource is not scheduled”

10: For Uu-DRX for SL operation, define it as optional per-UE capability, with capability bits in Uu-RRC, with neither FR1-FR2 nor FDD-TDD differentiation.

11: For gNB supporting SL-DRX, Tx-UE report DRX configuration reject information only in mode-1.

12: For GC, we will check with SA2 whether the mapping from L2 id to TX profile is feasible in the gNB (like what we did in LTE). Working assumption: no additional RAN2 work if SA2 confirms it’s feasible.

13: For resource pool with PSFCH, for FB-disabled case, if SCI does not indicate re-transmission resource, sl-drx-HARQ-RTT-Timer starts in the slot following the end of PSFCH resource.

14: For resource pool with PSFCH, for FB-disabled case, if SCI indicates re-transmission resource, sl-drx-HARQ-RTT-Timer starts in the slot following the end of PSSCH transmission (i.e., currently received PSSCH).

15: For resource pool without PSFCH, if SCI does not indicate re-transmission resource, allow sl-drx-HARQ-RTT-Timer timer length configuration different from the value for resource pool with PSFCH. The value of the RTT timer length (fixed to be zero, or allow non-zero value configuration as well) is FFS.

16: For sl-drx-RetransmissionTimer, a single value is sufficient to cover all cases (FB-enable/disable, PSFCH configured/not-configured).

17: For resource pool without PSFCH, if sl-PUCCH-Config is not configured, support drx-HARQ-RTT-TimerSL with a fixed value as zero.

18: For SL-DRX over PC5 interface, define a single capability bit covering all cast types and both Tx and Rx sides.

19: No need to capture in spec the condition for Rx-UE to reject a DRX configuration.

20: Check with SA2 whether a same L2 ID may associate with multiple Tx profiles, and thus may associate with both DRX-based Tx profile and non-DRX based Tx profile in Rel-16. Then also check with SA2 if feasible for Rel-17 SL DRX operation, L2 id is only associated with either DRX-based TX profile(s) or non-DRX based TX profile(s). DCR issue raised by ZTE can be discussed as part of LS preparation. If the question is valid to companies, we’re also adding that question otherwise we’re not adding it. Working assumption: no additional RAN2 work if SA2 confirms it’s feasible for Rel-17 SL DRX operation, L2 id is only associated with either DRX-based TX profile(s) or non-DRX based TX profile(s).

21: For unicast, sl-drx-RetransmissionTimer is not started after expiry of sl-drx-HARQ-RTT-Timer when the PSFCH of ACK transmission is dropped.

22: For resource reselection due to pre-emption, the reselected resource should not be earlier than the pre-empted resource in time domain.

23: For messages delivery after PC5-S DCR message until and including PC5-RRC RRCReconfigurationSidelink message including initial DRX configuration, UE remains in active. FFS on PC5-RRC RRCReconfigurationSidelinkComplete.

24: Not include HARQ RTT timer and retransmission timer in assistance information from RX UE to TX UE. FFS on inactivity timer.

25: In assistance information from Rx UE to Tx UE, multiple DRX settings can be included (detailed signalling format can be left to RRC running-CR discussion).

26: Add a NOTE that Tx-UE derives the DRX setting by taking assistance information into account (detailed wording left to RRC running-CR discussion).

27: If sl-PUCCH-Config is not configured, for both PSFCH configured and not-configured cases, drx-HARQ-RTT-TimerSL starts at the first symbol after end of PDCCH resource.

28: Working assumption: if there is no SL grant in the SL DRX active time of the destination that has data to be sent, trigger resource reselection.

29: The delivery of assistance information can be initiated if peer-UE is capable of sidelink DRX, the assistance information has not been sent previously if the RX UE is interested in sending assistance information.

30: Keep RX UE’s reject option for SL DRX configuration sent by TX UE. If reject happens for initial SL DRX configuration, default SL DRX configuration is no UC SL DRX. FFS on the default SL DRX configuration for non-initial SL DRX configuration. No enhancement to resolve any deadlock issue in Rel-17.

31: For Tx-UE in mode-1, SL-DRX command MAC-CE can be used, and RAN2 not pursue further optimization for it.

32: Working assumption: For mode-1 re-transmission grant, if the re-transmission grant is dropped due to no Rx-UE in active time, Tx-UE report NACK to network via PUCCH

33: The Tx profile should include at least the information of DRX support or not. Include this agreement into the LS to SA2.

34: For SL-DRX over PC5 interface, define it as optional per-UE capability, with capability bits in PC5-RRC, with neither FR1-FR2 nor FDD-TDD differentiation, and with capability bits in Uu-RRC, with no FR1-FR2 or FDD-TDD differentiation.

* [POST117-e][713][V2X/SL] LS to SA2 (ZTE)

 **Scope:** Prepare LS to SA2 (including the questions above)

 **Intended outcome:** Approve LS in R2-2203693

**Deadline:** Short email discussion

[Session chair]: Confirm the following working assumptions? Seems ok to confirm them.

Working assumptions:

1. Slots associated with the announced periodic transmissions by the TX UE are considered as SL active time of the RX UE.
2. For GC/BC, sl-drx-StartOffset (ms) = DST L2 ID MOD sl-drx-Cycle (ms)
3. 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.
4. 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.
* Confirm all working assumptions above as agreements

Agreement on working assumptions:

1: Confirm the following working assumptions as agreements

 - Slots associated with the announced periodic transmissions by the TX UE are considered as SL active time of the RX UE.

 - For GC/BC, sl-drx-StartOffset (ms) = DST L2 ID MOD sl-drx-Cycle (ms)

 - 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.

 - 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.

R2-2203679 Summary of 706 OPPO discussion Rel-17 NR\_SL\_enh-Core

Proposal 1 (10/15) For specification of destination-selection, adopt the NOTE-based approach (in R2-2202900), i.e., leave it to UE implementation.

Proposal 2 (?/15) For specification of resource selection for initial transmission of groupcast, RAN2 use the normative text ”The UE may select resource for the initial transmission of groupcast within the time when sl-drx-onDurationTimer or sl-drx-InactivityTimer of the destination is running.”.

Proposal 3 (10/15) For specification of active-time definition, RAN2 adopt a compromise-way i.e. use “e.g.” in the normative text to describe “the timer running or will be running in the future”.

* Agreed.

[Qualcomm]: NACK-based GC has performance degradation. Due to error of SCI reception and ACK/NACK, it is not good to send initial transmission during sl-drx-InactivityTimer in especially NACK-based GC, i.e. only to allow initial transmission only during on-duration timer. [OPPO, InterDigtal, Nokia, Ericsson, ZTE, Intel, LG, CATT, Vivo]: It is compromised solution and that’s why it is proposed as “may”, which means up to UE implementation, the UE is allowed to schedule initial transmission only during on-duration timer. [Session chair]: Suggest to agree it as compromise and for the further wording, we can correct it by CR.

Agreement on TP for SL DRX active time indication to PHY and resource (re)selection in SL DRX:

1: For specification of destination-selection, adopt the NOTE-based approach (in R2-2202900), i.e., leave it to UE implementation.

2: For specification of resource selection for initial transmission of groupcast, RAN2 use the normative text ”The UE may select resource for the initial transmission of groupcast within the time when sl-drx-onDurationTimer or sl-drx-InactivityTimer of the destination is running.”

3: For specification of active-time definition, RAN2 adopt a compromise-way i.e. use “e.g.” in the normative text to describe “the timer running or will be running in the future”.

R2-2203678 Draft-TP for mergerd solution OPPO draftCR Rel-17 NR\_SL\_enh-Core

* Endorse the TP and it will be captured in MAC CR in [POST117-e][703]

R2-2202475 Consideration of the Active Time for Periodic Transmissions InterDigital, Ericsson, vivo, Huawei, HiSilicon, Nokia, ASUSTek, Lenovo, Motorola Mobility, Samsung discussion Rel-17 NR\_SL\_enh-Core

R2-2202190 Discussion on DRX left issues OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2202388 Leftover Issue for Sidelink DRX CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2202430 Remaining aspects of SL DRX Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2202452 Discussion on SL DRX remaining issues for unicast ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2202453 Discussion on TX profile issues for SL DRX ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_enh-Core

R2-2202476 Resource Allocation for DRX InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2202540 Discussion on remaining issues on SL-DRX Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2202581 Remaining MAC issues for SL DRX Lenovo, Motorola Mobility discussion Rel-17

R2-2202667 On SL DRX and candidate resource selection Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2202713 Remaining issue on sidelink DRX Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2202764 Consideration on the different DRX status among RX UEs in SL groupcast Huawei, HiSilicon discussion Rel-17 NR\_SL\_enh-Core

R2-2202900 TP for NOTE-based approach for Q2.3.3-1b in [POST116bis-e][705] OPPO discussion Rel-17 NR\_SL\_enh-Core Late

R2-2202901 TP for normative-text-based approach for Q2.3.3-1b in [POST116bis-e][705] OPPO discussion Rel-17 NR\_SL\_enh-Core Late

R2-2202902 TP for NOTE-based approach for Q2.3.3-2b in [POST116bis-e][705] OPPO discussion Rel-17 NR\_SL\_enh-Core Late

R2-2202903 TP for normative-text-based approach for Q2.3.3-2b in [POST116bis-e][705] OPPO discussion Rel-17 NR\_SL\_enh-Core Late

R2-2202941 Discussion on remaining issues for SL DRX LG Electronics France discussion NR\_SL\_enh-Core

R2-2202984 consideration on the remaining issues for SL DRX LG Electronics France discussion Rel-17

R2-2203047 SL-DRX negotiation procedure in unicast vivo discussion Rel-17

R2-2203048 Unsolved issues on SL-DRX vivo discussion Rel-17

R2-2203082 Remaining issues for SL DRX Samsung Research America discussion

R2-2203147 Discussion on sidelink DRX open issues Xiaomi discussion

R2-2203152 Resource selection considering SL DRX ITL discussion Rel-17

R2-2203182 SL DRX CP aspects Lenovo, Motorola Mobility discussion NR\_SL\_enh-Core

R2-2203200 Handling of sidelink mode-1 grant drop due to misalignment with SL-DRX Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_enh-Core

R2-2203274 Down-selection for SL DRX configuration for GC/BC with multiple QoS profiles associated with the same L2 DST ID Nokia, Nokia Shanghai Bell discussion NR\_SL\_enh-Core

### 8.15.3 Resource allocation enhancements RAN2 scope

Including [POST116bis-e][706] and [POST116bis-e][707].

R2-2202823 Summary of [POST116bis-e][706][V2X/SL] Open issues on power-saving resource allocation, Phase 2 vivo (Rapporteur) discussion Late

Proposal 1: (modified) A UE decides which resource allocation scheme(s) can be used in the AS based on UE capability (for a UE in RRC idle/inactive) and the allowed resource schemes (i.e. allowedResourceSelectionConfig) in the resource pool configuration.

Proposal 2: A UE does not report the type of NR SL communication it is performing to the RAN (which decides what resource configuration and resource allocation scheme the UE can use based on UE capability).

* Proposal 1 and 2 are agreed.

[Ericsson]: For UE capability, the network already considered it when assigning the allowed resource schemes. What is the case the UE considers its capability? [Vivo]: For idle/inactive UEs.

Proposal 4a-1: There is a restriction that a UE can only use a resource allocation scheme to transmit in a pool allowing this scheme with “allowedResourceSelectionConfig”. Whether/what spec impact may be handled during CR implementation.

* Agreed.

Proposal 4a-2: It is up to UE implementation how to consider the per-pool allowedResourceSelectionConfig and UE capability (for a UE in RRC idle/inactive) during resource pool selection. Whether to capture it as a NOTE in the Spec may be discussed during CR implementation.

* Agreed.

Proposal 4b: It is up to UE implementation to select an allowed resource allocation scheme finally used in the selected resource pool (if the selected pool allows multiple resource allocation schemes the UE is capable to perform).

* Agreed.

Agreement on power-saving resource allocation:

1: A UE decides which resource allocation scheme(s) can be used in the AS based on UE capability (for a UE in RRC idle/inactive) and the allowed resource schemes (i.e. allowedResourceSelectionConfig) in the resource pool configuration.

2: A UE does not report the type of NR SL communication it is performing to the RAN (which decides what resource configuration and resource allocation scheme the UE can use based on UE capability).

3: There is a restriction that a UE can only use a resource allocation scheme to transmit in a pool allowing this scheme with “allowedResourceSelectionConfig”. Whether/what spec impact may be handled during CR implementation.

4: It is up to UE implementation how to consider the per-pool allowedResourceSelectionConfig and UE capability (for a UE in RRC idle/inactive) during resource pool selection. Whether to capture it as a NOTE in the Spec may be discussed during CR implementation.

5: It is up to UE implementation to select an allowed resource allocation scheme finally used in the selected resource pool (if the selected pool allows multiple resource allocation schemes the UE is capable to perform).

R2-2203159 Summary of [POST116bis-e][707][V2X/SL] Open issues on IUC (LG) LG (Rapporteur) discussion Rel-17 NR\_SL\_enh-Core Late

Proposal 2-1: [16/16] A standalone MAC CE for UE-A’s IUC information is transmitted through HARQ Feedback disabled MAC PDU.

Proposal 2-2: [16/16] When a MAC CE for IUC information is multiplexed with MAC SDU(s), the HARQ attribute of a MAC PDU is determined by following sl-HARQ-FeedbackEnabled being set to enabled or disabled for the highest priority logical channel included in the MAC PDU.

Proposal 2-3: [16/16] A standalone MAC CE for UE-B’s explicit request is transmitted through HARQ Feedback disabled MAC PDU.

Proposal 2-4: [16/16] When a MAC CE for explicit request is multiplexed with MAC SDU(s), the HARQ attribute of a MAC PDU is determined by following sl-HARQ-FeedbackEnabled being set to enabled or disabled for the highest priority logical channel included in the MAC PDU.

* Proposals 2-1, 2-2, 2-3 and 2-4 are agreed.

Proposal 3-2: [option b: 6/16, no strong view: 6/16] The priority order of a MAC CE for UE-B’s explicit request is between SL CSI reporting MAC CE and SL DRX command MAC CE (when priority of IUC REQ MAC CE is fixed as “1”).

* Agreed.
* Send LS to RAN1 to inform RAN2 understanding on the priority of IUC INFO/IUC REQ MAC CE and RAN2 preference to fix the priority of IUC INFO/IUC REQ MAC CE as “1”. Other question or information can be discussed as part of LS preparation and added if ok to companies.

[Huawei, Vivo]: To RAN1 agreement, it seems priority of IUC REQ is not always “1”. Proposal is valid only when priority of IUC REQ MAC CE is “1”. [Session chair]: We have two aspects of priority. First one is priority of IUC INFO/IUC REQ MAC CE itself which is used for LCP and multiplexing. Second one is priority information included in IUC INFO/IUC REQ which is used for sensing and/or candidate resource selection. Not sure which one RAN1 really refers, but for the first aspect, it should be decided by RAN2. Considering IUC INFO/IUC REQ can be sent by PSCCH and in the case IUC INFO/IUC REQ is prioritized than data from PSSCH, it sounds natural to fix the priority to “1” for IUC INFO/IUC REQ MAC CE. [LG, ZTE, Qualcomm, Apple, Intel, OPPO, Samsung, InterDigital, Nokia, Ericsson]: Agree with session chair. [Huawei]: Ok with it, but we need to inform RAN1.

Proposal 3-1: [a: 3/16, b: 5/16, c: 2/16] The priority order of a IUC Information MAC CE is between SL CSI reporting MAC CE and SL DRX command MAC CE (when priority of IUC Information MAC CE is fixed as “1”).

* Agreed.
* Include it into RAN1 LS

Proposal 3-3: RAN2 should discuss the priority order between IUC request MAC CE and IUC MAC CE.

- Option 1 [9/15]. IUC request MAC CE has a higher priority than IUC MAC CE

- Option 2 [8/15]. IUC MAC CE has a higher priority than IUC request MAC CE

* Not decided.

[Ericsson, Qualcomm]: Why not setting same priority for two MAC CEs? Then between two MAC CEs, prioritization can be left to UE implementation. Two MAC CEs are for the same purpose.

Proposal 4-1: [11/16] RAN2 introduces a mechanism of timer-based latency bound restriction for transmission of UE-A’s IUC information.

* Agreed.

[Apple]: Do we really need a timer-based control? [Ericsson, Lenovo, Huawei, Vivo, OPPO, Qualcomm]: It is based on the existing handling of CSI report MAC CE. Good to have same principle.

Proposal 4-2: RAN2 should discuss the applied scenario(s) where the timer-based latency bound restriction is applied for the transmission of UE-A’s IUC information.

- Option 1 [7/11]. Explicit request-based case only

- Option 2 [7/11]. Both explicit request-based IUC and condition-based IUC

* At least option 1 is supported.

For Explicit request-based case:

Proposal 4-4.1: [11/11] RAN2 introduces the timer-based latency bound restriction on the transmission of UE-A’s IUC information for both preferred resource set and non-preferred resource set in explicit request-based IUC.

* Agreed.

Proposal 4-5.1: RAN2 should discuss which option to support for configuring a timer for transmission of UE-A's IUC information in explicit request-based IUC.

- Option 1 [8/11]. “UE-B sets timer value to UE-A through PC5 RRC signaling”

- Option 2 [6/11]. “Timer value is configured based on (pre)configuration of the network”

* Working assumption for option 1.

[Apple, Samsung, Ericsson, Qualcomm, ZTE, Huawei, Nokia, OPPO]: Option1 is quite aligned with UC and CSI reporting. [Lenovo]: What timing information will be transmitted? Anyway it should be related to latency bound. RAN1 agreed to include starting and ending window time in IUC REQ. We can reuse the starting and ending window time instead of PC5 RRC signalling. [LG]: That information is for the resource selection. It’s not exactly same as latency boundary for the transmission of IUC information. [Lenovo]: Yes, but if the IUC information is provided after ending time, it’s useless. [Session chair]: Lenovo’s comment sounds valid, but it seems still majority companies want option 1. Can we set option 1 as working assumption now?

Proposal 4-6.1: [10/11] RAN2 supports that UE-A starts the timer for the transmission of UE-A's IUC information in the explicit request-based IUC when receiving an explicit request from UE-B and deciding to trigger IUC information to be transmitted UE-B.

* Agreed

Proposal 4-7.1: [9/11] (modified) RAN2 supports that UE-A can stop the timer for the transmission of IUC information in explicit request-based IUC when an IUC information to UE-B is generated by the Multiplexing and Assembly procedure.

* Agreed.

[Qualcomm]: Timer should be stopped after the transmission. [LG]: Proposal is aligned with what we already specified for CSI-RS reporting. Good to align with it.

Proposal 4-8.1: [11/11] RAN2 supports that UE-A can cancel the transmission of IUC information in explicit request-based IUC if the timer for the triggered UE-A’s IUC information reporting expires.

* Agreed.

Proposal 4-8.2: RAN2 supports that UE-A can cancel the transmission of IUC information in explicit request-based IUC when an IUC information to UE-B is generated by the Multiplexing and Assembly procedure.

* Agreed.

For condition-based case:

Proposal 4-3: [10/11] If option 2 of proposal 4-2 is agreed, for condition-based IUC, RAN2 introduces the timer-based latency bound restriction for the transmission of UE-A’s IUC information only in UC.

Proposal 4-4.2: [11/11] RAN2 introduces the timer-based latency bound restriction on the transmission of UE-A’s IUC information for both preferred resource set and non-preferred resource set in condition-based IUC.

Proposal 4-5.2: RAN2 should discuss which option to support for configuring a timer for transmission of UE-A's IUC information in condition-based IUC.

- Option 1 [4/11]. “UE-B sets timer value to UE-A through PC5 RRC signaling”

- Option 2 [5/11]. “Timer value is configured based on (pre)configuration of the network”

Proposal 4-6.2: [9/11] RAN2 supports that UE-A starts the timer for the transmission of UE-A's IUC information in the condition-based IUC when UE-A decides to trigger IUC information to be transmitted to UE-B in the condition-based IUC.

Proposal 4-7.2: [9/11] RAN2 supports that UE-A can stop the timer for the transmission of IUC information in condition-based IUC when an IUC information to UE-B is generated by the Multiplexing and Assembly procedure.

Proposal 4-8.3: [10/11] RAN2 supports that UE-A can cancel the transmission of IUC information in condition-based IUC if the timer for the triggered UE-A’s IUC information reporting expires.

Proposal 4-8.4: RAN2 supports that UE-A can cancel the transmission of IUC information in condition-based IUC when an IUC information to UE-B is generated by the Multiplexing and Assembly procedure.

* Proposals for condition-based case are skipped since condition-based case is not agreed.

Proposal 6-1: [RAN2 can start discussion: 5/16, wait for RAN1 progress: 10/16] RAN2 should decide whether to discuss the FFS point (i.e., FFS: Under which conditions groupcast/broadcast can be supported) on RAN1's WA.

- E.g., GG/BC session establishment (L2 DST ID setting) for transmitting the IUC information

Proposal 7-1: [13/16] For determining preferred resource set in Scheme 1, PC5-RRC signalling from UE-B to UE-A for transmitting the parameters (i.e., prio\_TX, L\_subCH, P\_rsvp\_TX, n+T\_1, n+T\_2) is not supported when inter-UE coordination information transmission is triggered by a condition other than explicit request reception.

* Agreed.

[Apple]: The information from UE-B is still useful for condition-based IUC INFO transmission. [OPPO, Ericsson, LG, Intel, Lenovo, CATT]: Support the proposal it is not clear why UE-B should be involved for condition-based IUC INFO transmission. [Lenovo]: It’s ok with the proposal but we need to discuss then how the UE determines the values? [Huawei]: (Pre)configuration according to RAN1.

Proposal 8-1: [RAN2 not further discuss: 9/16, wait for RAN1 progress: 5/16] For inter-UE coordination information is triggered by UE-B’s request, RAN2 not further discuss PC5-RRC signaling from UE-B to UE-A to provide information on whether UE-B supports sensing/resource exclusion.

* Agreed.

[Vivo]: Do we need further discussion to handle IUC REQ MAC CE latency bound? [Huawei, ZTE, OPPO, LG, Apple, Samsung, Qualcomm, Intel]: No need

* No special handling is needed to handle IUC REQ MAC CE latency bound

Agreement on IUC:

1: A standalone MAC CE for UE-A’s IUC information is transmitted through HARQ Feedback disabled MAC PDU.

2: When a MAC CE for IUC information is multiplexed with MAC SDU(s), the HARQ attribute of a MAC PDU is determined by following sl-HARQ-FeedbackEnabled being set to enabled or disabled for the highest priority logical channel included in the MAC PDU.

3: A standalone MAC CE for UE-B’s explicit request is transmitted through HARQ Feedback disabled MAC PDU.

4: When a MAC CE for explicit request is multiplexed with MAC SDU(s), the HARQ attribute of a MAC PDU is determined by following sl-HARQ-FeedbackEnabled being set to enabled or disabled for the highest priority logical channel included in the MAC PDU.

5: The priority order of a MAC CE for UE-B’s explicit request is between SL CSI reporting MAC CE and SL DRX command MAC CE (when priority of IUC REQ MAC CE is fixed as “1”).

6: The priority order of a IUC Information MAC CE is between SL CSI reporting MAC CE and SL DRX command MAC CE (when priority of IUC Information MAC CE is fixed as “1”).

7: Send LS to RAN1 to inform RAN2 understanding on the priority of IUC INFO/IUC REQ MAC CE and RAN2 preference to fix the priority of IUC INFO/IUC REQ MAC CE as “1”.

8: RAN2 introduces a mechanism of timer-based latency bound restriction for transmission of UE-A’s IUC information.

9: Timer-based latency bound restriction is applied for the explicit request based UE-A’s IUC information transmission.

10: RAN2 introduces the timer-based latency bound restriction on the transmission of UE-A’s IUC information for both preferred resource set and non-preferred resource set in explicit request-based IUC.

11: Working assumption: UE-B sets the timer value to UE-A through PC5 RRC signalling

12: RAN2 supports that UE-A starts the timer for the transmission of UE-A's IUC information in the explicit request-based IUC when receiving an explicit request from UE-B and deciding to trigger IUC information to be transmitted UE-B.

13: RAN2 supports that UE-A can stop the timer for the transmission of IUC information in explicit request-based IUC when an IUC information to UE-B is generated by the Multiplexing and Assembly procedure.

14: RAN2 supports that UE-A can cancel the transmission of IUC information in explicit request-based IUC if the timer for the triggered UE-A’s IUC information reporting expires.

15: RAN2 supports that UE-A can cancel the transmission of IUC information in explicit request-based IUC when an IUC information to UE-B is generated by the Multiplexing and Assembly procedure.

16: For determining preferred resource set in Scheme 1, PC5-RRC signalling from UE-B to UE-A for transmitting the parameters (i.e., prio\_TX, L\_subCH, P\_rsvp\_TX, n+T\_1, n+T\_2) is not supported when inter-UE coordination information transmission is triggered by a condition other than explicit request reception.

17: For inter-UE coordination information is triggered by UE-B’s request, RAN2 not further discuss PC5-RRC signaling from UE-B to UE-A to provide information on whether UE-B supports sensing/resource exclusion.

18: No special handling is needed to handle IUC REQ MAC CE latency bound.

* [POST117-e][714][V2X/SL] LS to RAN1 (Vivo)

 **Scope:** Prepare LS to RAN1 including RAN2 understanding on the priority of IUC INFO/IUC REQ MAC CE and RAN2 preference to fix the priority of IUC INFO/IUC REQ MAC CE as “1”. Other question/information can be discussed and added if ok to companies.

 **Intended outcome:** Approve LS in R2-2203695

**Deadline:** Short email discussion

R2-2203084 Introduction of IUC MAC CE Samsung Research America discussion

Proposal: RAN2 is asked to discuss container-based IUC MAC CE format (rather than defining each information field and the corresponding size inside of the MAC CE).

* We will design IUC INFO and IUC REQ MAC CE in legacy manner.

[Session chair]: Two ways to define IUC INFO/IUC REQ MAC CE Format:

Option 1: Define as container (e.g. like OCTET string in RRC container)

* OPPO, Samsung, LG, CATT, Lenovo (5)

Option 2: Define in legacy manner (i.e. define each field and its field size in MAC CE)

* Ericsson, Qualcomm, Huawei, Apple, InterDigital, Intel, MediaTek, NEC, ZTE, Nokia (10)

[Vivo]: With option 1, do we assume RAN1 specification will have actual information? [Samsung]: Yes, information in IUC REQ and IUC INFO MAC CE can be sent by PSCCH, so it is assumed RAN1 specification defines the information anyway. [OPPO]: With option 2, we still have variable lengths for each field, which makes legacy MAC CE design more complicated. Are we going to define max size for each field or to allow variable size for each field? [Session chair]: Let’s have short email discussion to capture IUC INFO and IUC REQ MAC CE format to MAC CR. Please use the fields and each field size in the following tables that RAN1 has just agreed this meeting (check if update).

IUC INFO MAC CE:

|  |  |
| --- | --- |
| **Field name** | **Field size (in bits)** |
| Providing/requesting indicator  | 1 |
| Resource combination(s) | $$N\*\left\{\left⌈log\_{2}(\frac{N\_{ subChannel}^{ SL}\left(N\_{ subChannel}^{ SL} + 1\right)\left(2N\_{ subChannel}^{ SL} + 1\right)}{6})\right⌉+9+Y\right\}$$Where $N\_{ subChannel}^{ SL}$ is provided by the higher layer parameter sl-NumSubchannel, $Y=\left⌈log\_{2}N\_{rsv\\_period}\right⌉$with that $N\_{rsv\\_period}$ is the number of entries in the higher layer parameter sl-ResourceReservePeriodList, if higher layer parameter sl-MultiReserveResoure is configured; $Y=0$ otherwise. |
| First resource location(s)  | $$\left(N-1\right)\*\left⌈log\_{2}(X)\right⌉$$Where X is provided by the (pre)configured maximum value of slot offset for the case when MAC CE only is used as a container of inter-UE coordination information  |
| Reference slot location | $$10+\left⌈log\_{2}(10∙2^{μ})\right⌉$$Where $μ$ is 0, 1, 2, 3 for SCS of 15kHz, 30kHz, 60kHz, 120kHz, respectively.  |
| Resource set type | 1 |
| Lowest subchannel indices for the first resource location of each TRIV | $$N\*\left⌈log\_{2}\left(N\_{subchannel}^{SL}\right)\right⌉$$Where $N\_{subchannel}^{SL}$ is provided by the higher layer parameter sl-NumSubchannel. |

IUC REQ MAC CE:

|  |  |
| --- | --- |
| **Field name** | **Field size (in bits)** |
| Providing/requesting indicator | 1 |
| Priority | 3 |
| Number of subchannels | $$\left⌈log\_{2}(N\_{ subChannel}^{ SL})\right⌉$$Where $N\_{ subChannel}^{ SL}$ is provided by the higher layer *parameter sl-NumSubchannel* |
| Resource reservation period | $$Y$$Where $Y=\left⌈log\_{2}N\_{rsv\\_period}\right⌉$with that $N\_{rsv\\_period}$ is the number of entries in the higher layer parameter *sl-ResourceReservePeriodList*, if higher layer parameter sl-*MultiReserveResoure* is configured; $Y=0$ otherwise. |
| Resource selection window location | $$2\left(10+\left⌈log\_{2}(10∙2^{μ})\right⌉\right)$$Where $μ$ is 0, 1, 2, 3 for SCS of 15kHz, 30kHz, 60kHz, 120kHz, respectively. |
| Resource set type | 1 bit if *determineResourceSetTypeScheme1* is set to ‘UE-B’s request’, otherwise, 0 bit |

* [POST117-e][715][V2X/SL] TP for IUC INFO and IUC REQ MAC CE format (OPPO)

 **Scope:** Discuss IUC INFO and IUC REQ MAC CE format according to the latest RAN1 agreements on the fields and each field size that to be included in MAC CE. Provide 38.321 TP for IUC INFO and IUC REQ MAC CE format.

 **Intended outcome:** Endorse 38.321 TP for IUC INFO and IUC REQ MAC CE format for 38.321 CR in R2-2203696 and agree discussion summary in R2-2203697 (if needed). Agreed TP will be added into MAC CR in [POST117-e][703].

**Deadline:** Short email discussion (can start it now, end until 3.9 10:00am UTC)

R2-2202191 Discussion on power saving resource allocation enhancement OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2202192 Discussion on inter-UE coordination OPPO discussion Rel-17 NR\_SL\_enh-Core

R2-2202387 IUC Request and Response MAC CE Design CATT discussion Rel-17 NR\_SL\_enh-Core

R2-2202431 MAC CE design of inter-UE coordination Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2202432 Remaining issues for power saving resource allocation Ericsson discussion Rel-17 NR\_SL\_enh-Core

R2-2202451 Discussion on Inter-UE coordination ZTE Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2202477 On the Allowable Cast Types for IUC InterDigital discussion Rel-17 NR\_SL\_enh-Core

R2-2202541 Discussion on Inter-UE Coordination Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2202542 Discussion on power saving resource selection Apple discussion Rel-17 NR\_SL\_enh-Core

R2-2202582 Open issues on SL inter-UE coordination Lenovo, Motorola Mobility discussion Rel-17

R2-2202668 Inter-UE coordination open issues Intel Corporation discussion Rel-17 NR\_SL\_enh-Core

R2-2202866 Consideration on Inter-UE coordination Huawei, HiSilicon discussion

R2-2202942 Discussion on Inter-UE Coordination LG Electronics France discussion NR\_SL\_enh-Core

R2-2203046 Latency bound and remaining PDB related to inter-UE coordination MAC CE not covered by open issue list vivo discussion Rel-17

R2-2203083 Partial-sensing/random selection based resource allocation in SL DRX Samsung Research America discussion

R2-2203207 Whether UE-A in IUC can be in mode 1 or mode 2 Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_enh-Core

R2-2203472 Discussion on Inter-UE Coordination Qualcomm Finland RFFE Oy discussion