**3GPP TSG-RAN WG2 #113-e *R2-210xxxx***

**E-meeting, January 2021**

Agenda Item: 8.7.4

Source: OPPO

Title: Summary of [AT113-e][015][NR16 V2X MOB DCCA] RRC II (OPPO)

Document for: Discussion, Decision

# Introduction

This is for the following email discussion

* [AT113-e][015][NR16 V2X MOB DCCA] RRC II (OPPO)

Scope: Treat R2-2100973, R2-2100101, R2-2100149, R2-2101702, R2-2100102, R2-2100103, R2-2100104, R2-2100974, R2-2100975, R2-2101535, R2-2101169, R2-2101182, R2-2101546

Phase 1, determine agreeable parts, Phase 2, for agreeable parts Work on CRs.

Intended outcome: Report and Agreed CRs.

Deadline: Schedule A

# Discussion

## Coexistence of V2X and DAPS

This is for the following Tdocs

Discussion

[R2-2100973](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100973.zip) Coexistance of DAPS and Sidelink Ericsson discussion Rel-16 NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core

[R2-2100101](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100101.zip) Co-configuration of V2X and other features OPPO discussion Rel-16 NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, LTE\_NR\_DC\_CA\_enh-Core

R2-2100149 DAPS HO and NR Sidelink Communication Samsung Electronics Co., Ltd               discussion            Rel-16    5G\_V2X\_NRSL-Core

CRs

R2-2101702 Clarification on DAPS HO configuration      vivo        CR          Rel-16    38.331   16.3.1               2430      -             F             5G\_V2X\_NRSL-Core

[R2-2100102](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100102.zip) CR on co-configuration of NR-V2X and other features OPPO CR Rel-16 38.331 16.3.1 2301 - F NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, LTE\_NR\_DC\_CA\_enh-Core

Firstly, on whether the Sidelink and DAPS can be co-configured

In 0973:

P1: RAN2 to confirm that DAPS HO cannot be configured together with NR and V2X sidelink communications.

In 0101, which is in the similar position as 0973

P1: RAN2 confirms R16 UE is not expected to be configured with DAPS and sidelink together.

In 0149, the view is opposite to 0973/0101

P1: DAPS HO can be configured irrespective of whether UE is configured with NR sidelink communication or not.

**Q1-1: Can DAPS HO and NR sidelink communication be configured together?**

* **Yes**
* **No**

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| Company | Yes/No | Comment |
| Samsung | Yes | We do not see any technical reason to not allow such configuration.  DAPS HO is intended to reduce interruption on Uu during the handover. When the UE is configured with NR sidelink communication, UE is also involved in Uu communication and Uu DRBs carry the data of V2X services (e.g. for remote driving use case). For remote driving use case, the end-to-end latency requirement is quite stringent (5ms including CN latency). So, DAPS HO is beneficial and not allowing network to configure DAPS HO when UE is configured with sidelink communication is not a good option.  During DAPS HO, the basic principles (i.e. using target cell configuration including exceptional pool and reset of SL operation in MAC) of SL communication during normal HO can be applied. |
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If one believes that DAPS/Sidelink can be configured, the follow-up question is as raised in 0149, i.e., which Uu-MAC for the UE to follow for the SL operation

**Proposal 2: RAN2 should further discuss and agree on one of the following:**

* **Option 1: Target MCG MAC entity is used for NR V2X Communication**
  + **A) Partial reset of source MCG MAC entity is needed so that source MCG MAC entity stops performing any operation related to SL.**
  + **B) In case DAPS HO fails and RLF is not detected on source PCell, UE should perform NR V2X Communication using the source MCG MAC entity. SL configuration of source MCG should be applied for NR V2X Communication.**
* **Option 2: Source MCG MAC entity is used for NR V2X Communication**

**Proposal 3: If option 2 in proposal 2 is agreed, RAN2 should further discuss and agree on one of the following:**

* + **Option 1: UE continue to use dedicated sidelink configuration of source PCell until HO is completed.**
    - **In this case exceptional pool of target PCell should not be used while T304 is running.**
  + **Option 2: UE uses the dedicated sidelink configuration of target PCell** 
    - **In case DAPS HO fails and RLF is not detected on source PCell, for NR V2X communication UE revert back to the UE configuration used in the source PCell**

**Q1-2: If Yes to Q1-1, which option(s) do you prefer for the operation of NR Sidelink during DAPS HO:**

* **Option-1: to rely on target MCG MAC;**
* **Option-2: to rely on source MCG MAC and the source-cell SL configuration during HO;**
* **Option-3: to rely on source MCG MAC and target-cell SL configuration during HO;**
* **Others**

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| Company | Option | Comment |
| Samsung | Option 1 | During normal HO, UE uses target cell configuration including exceptional pool and reset of SL operation in MAC is performed. Same principles can be applied.  Since target cell configuration is applied to target MCG MAC during DAPS HO, target MCG MAC can be used and SL operation in source MCG MAC is reset. |
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Or if one does not believe that DAPS/Sidelink can be configured, it may worth some specification clarification:

In 1702, the suggested change is a NOTE to section 5.8.1 (the “General” section for sidelink)

NOTE4: DAPS HO is not configured when UE is configured with NR sidelink communication

In 0102, the suggested change is to revise the condition description for the configuration of DAPS

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| *DAPS* | The field is optionally present, need N, in case masterCellGroup includes ReconfigurationWithSync, SCell(s) and SCG are not configured, multi-DCI/single-DCI based multi-TRP are not configured in any DL BWP, ethernetHeaderCompression is not configured for the DRB, and sidelink is not configured. Otherwise the field is absent. |

In 0973, no CR/TP is provided, but it is proposed

Proposal 2 During DAPS HO, the network needs to release all NR and LTE sidelink communication configurations before the handover command is sent to the UE.

Rapporteur understands the P2 in 0973 is in the same direction of the two CRs above.

**Q1-3: If No to Q1-1, which CR do you prefer for stage-3 clarification in 38.331**

* **Option-1: 1702 as baseline**
* **Option-2: 0102 as baseline;**
* **Other;**

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| Company | Option | Comment |
| Samsung | Option-1 | A note is fine. |
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Another issue raised in 0973 is as follows:

P3: When DAPS is executed, the sidelink UE can continue to use the dedicated sidelink configuration and the exceptional pool of the source PCell until the DAPS HO is completed.

Based on rapporteur understanding, it is to propose the UE to continue using the dedicated SL configuration even after it is released (as proposed in P1 in 0973) by network. If that is true, rapporteur think it is more of detailed aspects of sidelink, and is somehow against the general design principle for SL, i.e., reply on dedicated RRC when in RRC\_CONNECTED.

**Q1-4: For the P3 of 0973 above, do you agree?**

* **Yes;**
* **No;**

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| Company | Yes/No | Comment |
| Samsung | See comment | This question is applicable if answer to Q 1-1 is Yes.  If “DAPS is not configured when UE is configured with NR SL communication” then the P3 is incorrect.  In our understanding this is basically option 2 of Q 1-2 |
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## Coexistence of V2X and DC

This is for the following Tdocs

[R2-2100101](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100101.zip) Co-configuration of V2X and other features OPPO discussion Rel-16 NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, LTE\_NR\_DC\_CA\_enh-Core

CRs

[R2-2100102](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100102.zip) CR on co-configuration of NR-V2X and other features OPPO CR Rel-16 38.331 16.3.1 2301 - F NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, LTE\_NR\_DC\_CA\_enh-Core

[R2-2100103](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100103.zip) CR on Co-configuration of NR-V2X and MR-DC OPPO CR Rel-16 37.340 16.4.0 0245 - F 5G\_V2X\_NRSL-Core

As clarified in the cover page of 0103,

RAN2#110 ruled out the configuration of EN/NE-DC for NR sidelink

*=> RAN2 can attempt to introduce signaling for PC5 BC for (NG)EN/NE-DC scenario in CR implementation. If not so complicated, we introduce the signaling but otherwise we do not introduce it. Note with introduction of signaling, it does not mean RAN4 should introduce the corresponding BC now.*

RAN2#111 ruled out the configuration of NR-DC for NR sidelink

*=> No consensus for introduction of the signaling for NR-DC, so a parameter to indicate whether UE supports PC5 BC when NR Uu BC is configured as NR-DC is not supported in this release. The consequence from not introducing this signaling is NW may not be able to configure SN for the UE to perform SL communication.*

In order to reflect that, a stage-2 CR is proposed in 0103, i.e., to remove the support in DC scenario

13.2 Void

**Q2-1: Do you agree with the stage-2 CR in 0103 which reflects the agreement above?**

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| Company | Agree/Not-agree | Comment |
| Samsung | See comment | We do not have a strong view but fine to leave it as informative. |
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And in order to reflect that, a stage-3 CR is proposed in 0102 (change-2), i.e., to remove the behaviour related to T316 for DC architecture

**Q2-2a: Do you agree with that UE is not expected to be configured with t316 (for DC scenario) and sidelink together?**

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| Company | Agree/Not-agree | Comment |
| Samsung | Agree |  |
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**Q2-2b: If Agree to Q2-2a, do you agree the stage-3 CR in 0102 which reflects the agreement above?**

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| Company | Agree/Not-agree | Comment |
| Samsung | Agree |  |
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## Coexistence of CHO and UAI/SUI message

This is for the following Tdocs:

[R2-2100101](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100101.zip) Co-configuration of V2X and other features OPPO discussion Rel-16 NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, LTE\_NR\_DC\_CA\_enh-Core

[R2-2100102](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100102.zip) CR on co-configuration of NR-V2X and other features OPPO CR Rel-16 38.331 16.3.1 2301 - F NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, LTE\_NR\_DC\_CA\_enh-Core

[R2-2100104](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100104.zip) CR on co-configuration of CHO and UAI and SUI report OPPO CR Rel-16 36.331 16.3.0 4544 - F 5G\_V2X\_NRSL-Core, NR\_Mob\_enh-Core

[R2-2101169](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101169.zip) Retransmission of UE information after CHO Google Inc. CR Rel-16 36.331 16.3.0 4569 - F MBMS\_LTE\_SC-Core, SPIA\_IDC\_LTE-Core, LTE\_feMob-Core, 5G\_V2X\_NRSL-Core, LTE\_eDDA-Core

[R2-2101182](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101182.zip) Retransmission of UE information after CHO Google Inc. CR Rel-16 38.331 16.3.1 2389 - F NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, NR\_UE\_pow\_sav-Core

One issue raised in 0101/0104/0102 (Change-1) and 1169/1182, when CHO is utilized, how to handle the triggers for UAI/SUI re-transmission to target cell, for which the legacy triggers are as follows

2> if the UE initiated transmission of a *UEAssistanceInformation* message for the corresponding cell group during the last 1 second, and the UE is still configured to provide the concerned UE assistance information for the corresponding cell group:

3> initiate transmission of a *UEAssistanceInformation* message for the corresponding cell group in accordance with clause 5.7.4.3 to provide the concerned UE assistance information;

3> start or restart the prohibit timer (if exists) associated with the concerned UE assistance information with the timer value set to the value in corresponding configuration;

2> if *SIB12* is provided by the target PCell; and the UE initiated transmission of a *SidelinkUEInformationNR* message indicating a change of NR sidelink communication related parameters relevant in target PCell (i.e. change of *sl-RxInterestedFreqList* or *sl-TxResourceReqList*) during the last 1 second preceding reception of the *RRCReconfiguration* message including *reconfigurationWithSync* in *spCellConfig* of an MCG:

3> initiate transmission of the *SidelinkUEInformationNR* message in accordance with 5.8.3.3;

So the first question is whether the co-configuration is necessary.

**Q3-1: Do you think UE may be configured with CHO and the UAI and/or SUI message report together?**

* **Yes**
* **No**

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| Company | Yes/No | Comment |
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If co-configuration is reasonable, the next question is how to revise the trigger.

In 0101/0104/0102 (Change-1), the proposal is that

*Proposal 2 RAN2 confirm for R16 UE configured with CHO, the reporting of UAI/SUI message to target cell includes the UAI/SUI sent to source cell 1) 1s before the reception of ConditionalReconfiguration, and 2) after the reception of ConditionalReconfiguration.*

In 1169/1182, the proposal is that

3> if the UE has initiated the transmission of an *InDeviceCoexIndication* message during the last 1 second preceding reception of the *RRCConnectionReconfiguration* message including *mobilityControlInfo* or conditional reconfiguration execution:

**Q3-2: if Yes to Q3-1, which trigger should be used for the UAI/SUI re-transmission to target cell if CHO is configured?**

* **Option-1: message sent to source cell during 1s before the reception of ConditionalReconfiguration, plus those sent to source cell after the reception of ConditionalReconfiguration;**
* **Option-2: message sent to source cell during 1s before the conditional reconfiguration execution;**
* **Other**

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| Company | Option | Comment |
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**Q3-3a: If option-1 for Q3-2, do you agree the CR in 0104/0102 (change-1)?**

* **Yes**
* **No**

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| Company | Yes/No | Comment |
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**Q3-3b: If option-2 for Q3-2, do you agree the CR in 1169/1182?**

* **Yes**
* **No**

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| Company | Yes/No | Comment |
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## Measurement for V2X/POS

This is for the following Tdocs

[R2-2100974](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2100974.zip) Correction to meaqsResultServingMOList impacting EN-DC Ericsson CR Rel-16 38.331 16.3.1 2371 - F NR\_newRAT-Core, 5G\_V2X\_NRSL-Core

[R2-2100975](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2100975.zip) Correction to measResultPCell impacting EN-DC Ericsson CR Rel-16 36.331 16.3.0 4557 - F NR\_newRAT-Core, 5G\_V2X\_NRSL-Core

[R2-2101535](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_113-e\Docs\R2-2101535.zip) CR on measurement object modification ZTE Corporation, Sanechips CR Rel-16 38.331 16.3.1 2418 - F NR\_pos-Core, 5G\_V2X\_NRSL-Core

Firstly, 0974/5 raised an issue that the meaqsResultServingMOList/measResultPCell

* Should be ignored in the inter-RAT scenario (without DC being configured), where the configuration is included in the RRC container in another RAT;
* Should not be ignored in the DC scenario (NGEN-DC and NE-DC), where the configuration is also included in the RRC container in another RAT;

**Q4-1a: Do you agree with the intention of 0974/0975?**

* **Yes**
* **No**

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**Q4-1b: If yes to Q4-1a, do you agree with the CR in 0974/0975?**

* **Yes**
* **No**

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| Company | Yes/No | Comment |
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Secondly, 1535 propose to add the following IEs into the MO

3> reconfigure the entry with the value received for this *measObject*, except for the fields *cellsToAddModList*, *blackCellsToAddModList*, *whiteCellsToAddModList*, *cellsToRemoveList*, *blackCellsToRemoveList*, *whiteCellsToRemoveList*, *tx-PoolMeasToRemoveList*, *tx-PoolMeasToAddModList*, *ssb-PositionQCL-CellsToRemoveList*,and *ssb-PositionQCL-CellsToAddModList*;

**Q4-2a: Do you agree with the intention of 1535?**

* **Yes**
* **No**

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**Q4-2b: If yes to Q4-2a, do you agree with the CR in 1535?**

* **Yes**
* **No**

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## Other

This is for the following Tdoc

[R2-2101546](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2101_R2_113e/Docs/R2-2101546.zip) Clarification on ULInformationTransferMRDC message ZTE Corporation, Sanechips CR Rel-16 38.331 16.3.1 2419 - F NR\_Mob\_enh-Core, LTE\_NR\_DC\_CA\_enh-Core

1546 is to clarify the initiation condition for UL information transfer MRDC by the two changes below, i.e.,

A UE in RRC\_CONNECTED initiates the UL information transfer for MR-DC procedure whenever there is a need to transfer MR-DC dedicated information. I.e. the procedure is not used during an RRC connection reconfiguration involving NR or E-UTRA connection reconfiguration, in which case the MR DC information is piggybacked to the *RRCReconfigurationComplete* message, except in the case the UE executes a CPC.

And

The *ULInformationTransferMRDC* message is used for the uplink transfer of MR-DC dedicated information (e.g. for transferring the NR or E-UTRA RRC *MeasurementReport* message, the *FailureInformation* message, the *UEAssistanceInformation* message, the *RRCReconfigurationComplete* message or the NR or E-UTRA RRC *MCGFailureInformation* message).

**Q5-1: Do you agree with the intention of 1546?**

* **Yes**
* **No**

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**Q5-2: If yes for Q5-1, do you agree wih the CR of 1546?**

* **Yes**
* **No**

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| Company | Yes/No | Comment |
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# Conclusion

We have the following proposals

[Proposal 1 xxx.](#_Toc62216175)

# Reference

1. R2-2100973 Coexistance of DAPS and Sidelink Ericsson discussion Rel-16 NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core
2. R2-2100101 Co-configuration of V2X and other features OPPO discussion Rel-16 NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, LTE\_NR\_DC\_CA\_enh-Core
3. R2-2100149 DAPS HO and NR Sidelink Communication Samsung Electronics Co., Ltd discussion Rel-16 5G\_V2X\_NRSL-Core
4. R2-2101702 Clarification on DAPS HO configuration vivo CR Rel-16 38.331 16.3.1 2430 - F 5G\_V2X\_NRSL-Core
5. R2-2100102 CR on co-configuration of NR-V2X and other features OPPO CR Rel-16 38.331 16.3.1 2301 - F NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, LTE\_NR\_DC\_CA\_enh-Core
6. R2-2100103 CR on Co-configuration of NR-V2X and MR-DC OPPO CR Rel-16 37.340 16.4.0 0245 - F 5G\_V2X\_NRSL-Core
7. R2-2100104 CR on co-configuration of CHO and UAI and SUI report OPPO CR Rel-16 36.331 16.3.0 4544 - F 5G\_V2X\_NRSL-Core, NR\_Mob\_enh-Core
8. R2-2100974 Correction to meaqsResultServingMOList impacting EN-DC Ericsson CR Rel-16 38.331 16.3.1 2371 - F NR\_newRAT-Core, 5G\_V2X\_NRSL-Core
9. R2-2100975 Correction to measResultPCell impacting EN-DC Ericsson CR Rel-16 36.331 16.3.0 4557 - F NR\_newRAT-Core, 5G\_V2X\_NRSL-Core
10. R2-2101535 CR on measurement object modification ZTE Corporation, Sanechips CR Rel-16 38.331 16.3.1 2418 - F NR\_pos-Core, 5G\_V2X\_NRSL-Core
11. R2-2101169 Retransmission of UE information after CHO Google Inc. CR Rel-16 36.331 16.3.0 4569 - F MBMS\_LTE\_SC-Core, SPIA\_IDC\_LTE-Core, LTE\_feMob-Core, 5G\_V2X\_NRSL-Core, LTE\_eDDA-Core
12. R2-2101182 Retransmission of UE information after CHO Google Inc. CR Rel-16 38.331 16.3.1 2389 - F NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core, NR\_UE\_pow\_sav-Core
13. R2-2101546 Clarification on ULInformationTransferMRDC message ZTE Corporation, Sanechips CR Rel-16 38.331 16.3.1 2419 - F NR\_Mob\_enh-Core, LTE\_NR\_DC\_CA\_enh-Core