3GPP TSG-RAN WG3 #122 R3-237873

Chicago, USA, 13-17 November 2023

Agenda Item: 19.2

Source: ZTE(moderator)

Title: Summary of Offline Discussion for CB # R18UAV

Document for: Approval

# Introduction

**CB: # R18UAV**

**- Check SA2 spec and open issue above**

**- Other critical issues？F1AP, 7519**

**- Provide TPs if agreeable**

(moderator - ZTE)

Summary of offline disc [R3-237873](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_122%5CInbox%5CR3-237873.zip)

# For the Chairlady’s Notes

**For A2X service supporting:**

Proposal 1: It is proposed for RAN3 to introduce the following IEs in XnAP, NGAP for A2X service supporting:.

*NR A2X Services Authorized* IE

*LTE A2X Services Authorized* IE

*NR A2X UE PC5 Aggregate Maximum Bit Rate* IE

*LTE A2X UE PC5 Aggregate Maximum Bit Rate* IE

*A2X PC5 QoS Parameters* IE

Proposal 2: For A2X service supporting, RAN3 agrees to introduce the 5 new IEs in the following NGAP messages:

- INITIAL CONTEXT SETUP REQUEST

- UE CONTEXT MODIFICATION REQUEST

- HANDOVER REQUEST

- PATH SWITCH REQUEST ACKNOWLEDGE

Proposal 3: For A2X service supporting, RAN3 agrees to introduce the 5 new IEs in the following XnAP messages:

- HANDOVER REQUEST

- RETRIEVE UE CONTEXT RESPONSE

Proposal 4: For A2X service supporting, RAN3 agrees to introduce the following new IEs in the F1AP UE CONTEXT SETUP REQUEST message and UE CONTEXT MODIFICATION REQUEST message:

*NR A2X Services Authorized* IE

*LTE A2X Services Authorized* IE

*NR A2X UE PC5 Aggregate Maximum Bit Rate* IE

*LTE A2X UE PC5 Aggregate Maximum Bit Rate* IE

**TP to 300:**

Proposal 5: Agree TS 38.300 TP based on R3-237178 for 5G NR wording equivalence.

**LS to RAN2 and SA2:**

Proposal 6: LS to both RAN2 and SA2 on RAN3 progress for UAV flightpath info and A2X service supporting.

**TP and LS allocation:**

TP to 38.413: based on R3-237177 (CATT)

TP to 38.423: based on R3-237713 (ZTE)

TP to 38.473: based on R3-237382 (HW)

TP to 38.300: based on R3-237178 (Nokia)

LS to R2 and SA2: provide by E//

# Discussion

## RAN3 A2X supporting

During the online session, majority companies prefer to support A2X service function in RAN3 based on received SA2 LS and RAN2 progress. But how to support this A2X service function shall be further discussed in the cb discussion. More specifically, whether new IEs shall be introduced for A2X service.

In addition, in [5], it is explained that this A2X service reuses the existing V2X mechanism. In the existing mechanism, both LTE V2X and NR V2X have separate subscription information. And SA2 has specified A2X service subscription information in TS 23.502 and shown below:

==== content in TS 23.502 ====

5.2.3.3 Nudm\_SubscriberDataManagement (SDM) Service

5.2.3.3.1 General

Subscription data types used in the Nudm\_SubscriberDataManagement Service are defined in Table 5.2.3.3.1-1 below.

**Table 5.2.3.3.1-1: UE Subscription data types**

| Subscription data type | Field | Description |
| --- | --- | --- |
| *\*\*\*\* skipped other subscription information \*\*\*\** |
| A2X Subscription data (see TS 23.256 [80]) | NR A2X Services Authorization | Indicates whether the UE is authorized to use the NR sidelink for A2X services. |
|  | LTE A2X Services Authorization | Indicates whether the UE is authorized to use the LTE sidelink for A2X services. |
|  | NR UE-PC5-AMBR for A2X | AMBR of UE's NR sidelink (i.e. PC5) communication for A2X services. |
|  | LTE UE-PC5-AMBR for A2X | AMBR of UE's LTE sidelink (i.e. PC5) communication for A2X services. |
| *\*\*\*\* skipped other subscription information \*\*\*\** |

==== content in TS 23.502 ====

During the online discussion, 5 companies provided their views and 4 of them preferred to introduce new IEs. 1 company further explained to introduce IEs for LTE and NR subscription separately. From moderator’s point of view, let’s firstly discuss whether to introduce any new IEs for A2X, then discuss whether RAN3 needs to separately introduce any needed IEs for NR and LTE subscription.

**Q1: Please provide your views on whether to introduce new IEs for the following three aspects:**

**-** **A2X services authorized" indication,**

**- UE-PC5-AMBR for A2X services,**

**- PC5 QoS parameters for A2X services.**

Moderator Note:

* If companies do not prefer to introduce new IEs for A2X supporting, please also provide your views here.
* If companies prefer to introduce new IEs for both LTE and NR subscriptions, please provide views in Q4.

|  |  |
| --- | --- |
| **Company** | **Comment** |
| ZTE | Based on the SA2 LS and RAN2 progress, we need to introduce IEs for these 3 aspects.Our understanding here is that, V2X, A2X, and SL are the same level functions. A UE may be possible to support and be configured all these three functions. Separate IEs may let RAN3 specification more clear and easy to use.The following IEs shall be introduced for NR subscription.- NR A2X services authorized IE,- NR A2X UE-PC5-AMBR IE,- A2X PC5 QoS parameters IE. |
| Nokia | Agree to introduce. |
| Huawei | See reply to Q4 |

If companies believe one or multiple new IEs shall be introduced in RAN3 specifications, please answer the following questions:

**Q2: The new IEs need to be added into which XnAP and NGAP messages?**

|  |  |
| --- | --- |
| **Company** | **Comment** |
| ZTE | XnAP:- HANDOVER REQUEST- RETRIEVE UE CONTEXT RESPONSENGAP:- INITIAL CONTEXT SETUP REQUEST- UE CONTEXT MODIFICATION REQUEST- HANDOVER REQUEST- PATH SWITCH REQUEST ACKNOWLEDGE |
| Nokia | Same view as ZTE |
| Huawei | Same view as ZTE |
| Ericsson | Ok |

**Q3: Please provide your views on whether to introduce the new IEs for A2X service in F1AP.**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or No** | **Comment** |
| ZTE | YES | Ok to introduced all new A2X IEs in F1AP.  |
| Nokia | Yes | Rapportuer- Nokia can trigger WID update to include F1 spec. |
| Huawei | Yes | As also did for the V2X service |
| Ericsson | Ok |  |

**Q4: Please provide your views on whether to introduce separate IEs for both NR and LTE subscription? If so which IEs shall be separately introduced?**

|  |  |
| --- | --- |
| **Company** | **Comment** |
| ZTE | Based on internal feedback from our V2X colleague, we are fine to introduce the following IEs:- LTE A2X services authorized IE,- LTE A2X UE-PC5-AMBR IE,- A2X PC5 QoS parameters IE.Actually, based on the RAN2 progress, both NR and LTE subscription info shall be captured in RAN3 specs.FYI: there are 2 different WIDs for NR UAV in RAN2, NR WID: RP-230782 and LTE WID: RP-230783. |
| Nokia | Separate IEs preferred. |
| Huawei | Yes, as per SA2 specification in TS 23.502.IEs to be introduced separately for both NR and LTE are at least: A2X service authorization, UE-PC5-AMBR for A2X; open to discuss about PC5 QoS parameters for A2X services |

**Moderator summary:**

Based on the answers in 4 questions. All companies prefer to introduce the following IEs in XnAP, NGAP.

*NR A2X Services Authorized* IE

*LTE A2X Services Authorized* IE

*NR A2X UE PC5 Aggregate Maximum Bit Rate* IE

*LTE A2X UE PC5 Aggregate Maximum Bit Rate* IE

*A2X PC5 QoS Parameters* IE

For A2X service supporting, RAN3 agrees to introduced the 5 new IEs in the following NGAP messages:

- INITIAL CONTEXT SETUP REQUEST

- UE CONTEXT MODIFICATION REQUEST

- HANDOVER REQUEST

- PATH SWITCH REQUEST ACKNOWLEDGE

For A2X service supporting, RAN3 agrees to introduced the 5 new IEs in the following XnAP messages:

- HANDOVER REQUEST

- RETRIEVE UE CONTEXT RESPONSE

For A2X service supporting, RAN3 agrees to introduced the following new IEs in the F1AP UE CONTEXT SETUP REQUEST message and UE CONTEXT MODIFICATION REQUEST message:

*NR A2X Services Authorized* IE

*LTE A2X Services Authorized* IE

*NR A2X UE PC5 Aggregate Maximum Bit Rate* IE

*LTE A2X UE PC5 Aggregate Maximum Bit Rate* IE

##  300 TP for the wording equivalence and flightpath

In [4], a TP for 300 BLCR is provided for the wording equivalence.

**Q5: Please provide your views on whether TP to 300 is needed.**

|  |  |
| --- | --- |
| **Company** | **Comment** |
| ZTE | No Strong view. It is good to use the equivalent wording in both LTE and NR. |
| Nokia | 38300 needs update to NR terms and to reflect the outcomes of this CB. |
| Huawei | Fine with the Nokia’s TP |

**Moderator summary:**

Provide 300 TP based on [4].

## Introduce UE sent Flight Path cancellation IE for HO

In RAN3#120 meeting, it is agreed that the UE Flight Path is sent to the target RAN during handover. When the UE has sent “empty flight path” to the source RAN, the source RAN could decide not to include the early received UE Flight Path to the target ( it is an Optional IE).

However the above approach would be very ambiguous as pre Rel-18, the source RAN does not send the UE flight path to the target during handover. In this situation, the target RAN may poll the UE for the flight path. In our view, UE sends an empty flight path when the there is no path, or it has low power. The UE does not desire that the network to poll its flight path. We would need to distinguish to the target RAN during handover that the UE has sent flight path canellation.

**Q5: Please provide your views on whether RAN3 shall introduce a “UE sent Flight Path cancellation” IE for handover procedures.**

|  |  |
| --- | --- |
| **Company** | **Comment** |
| ZTE | It is too redundant to have this IE for HO procedure. Transmit nothing on flightpath info from source node to target node is enough.  |
| Nokia | Do not see the need.to add this. |
| Huawei | Share the same view as Nokia |
| Ericsson | In our view, UE sends this “flight path cancellation” to gNB for a reason, e.g. what UE is in low power, and does not wish gNB to pull the flight path.Thus this information should be carried on to the target, so that the target would not e.g. pull UE’s flight path unnecessarily. |

**Moderator summary:**

3 companies do not prefer to introduce this IE.

Proposal X: RAN3 can not make consensus on introducing UE sent Flight Path cancellation IE for handover.

## LS to SA2 and RAN2

In [1], it is proposed for RAN3 to send an LS to both SA2 and RAN2 with RAN3 decision on supporting A2X and the flightpath situation.

**Q5: Please provide you views on whether RAN3 shall send LS to SA2 and/or RAN2.**

|  |  |
| --- | --- |
| **Company** | **Comment** |
| ZTE | After RAN3 make agreement on A2X supporting and removing flightpath info, it is good for RAN3 to snyc up our agreement to related WGs. |
| Nokia | LS to RAN2 to inform the changes regarding the flightpath info. No need to SA2. |
| Huawei | Maybe a single LS to both RAN2 and SA2 could be agreed for UAV flight info forwarding and A2X service support, respectively. |

**Moderator summary:**

Send LS to RAN2 and SA2 for RAN3 progress on UAV WI.

## Other issues

**Q6: Any other issues may be provided here.**

|  |  |
| --- | --- |
| **Company** | **Comment** |
|  |  |
|  |  |
|  |  |

# Conclusions

# References

1. R3-237713 Discussion on UAV left issues (ZTE, CMCC, China Telecom) discussion
2. R3-237714 TP to TS 38.413 BLCR for A2X communication supporting and flightpath modification (ZTE, CMCC, China Telecom) other
3. R3-237715 TP to TS 38.423 BLCR for A2X communication supporting and flightpath information modification (ZTE, CMCC,CATT, China Telecom) other
4. R3-237178 TP (BL CR TS 38.300) Stage 2 corrections for NR support for UAV (Nokia, Nokia Shanghai Bell) other
5. R3-237382 (TPs for UAV BL CRs for TS 38.423, TS 38.413 and TS 38.473) Remaining open issues for NR UAV (Huawei) other
6. R3-237519 Text Proposal to NGAP and XnAP Baseline CRs on NR support for UAV (Ericsson) other
7. R3-237177 (TP to BL CR for TS 38.413)Support of A2X communication (CATT) other