**3GPP TSG-RAN WG2 Meeting #117 electronic *R2-2203570***

**Online, February 21st – March 3rd, 2022**

**Agenda Item: 8.10.3.1.1**

**Source: Thales**

**Title: Summary of [AT117-e][115][NTN] UE location in connected mode (Thales)**

**Document for: Discussion and Decision**

# Introduction

This document aims to summarize the following discussion.

** [AT117-e][115][NTN] UE location in connected mode (Thales)**

Scope: Discuss offline whether coarse UE location info can be sent in connected mode without user consent

Initial intended outcome: Summary of the offline discussion

Deadline (for companies' feedback): Wednesday 2022-03-02 2000 UTC

Deadline (for rapporteur's summary in R2-2203570): Wednesday 2022-03-02 2100 UTC

# 1st round discussion

In its LS response (see [1]),

* *“…. SA2 informs RAN2 and RAN3 that SA2 has no plan to consider any way for providing the LMF/LCS UE location info obtained by AMF back to RAN.*
* *SA2 hypothesis is that the NG-RAN receives a location from the UE after AS security is established, maps that location to a CGI and then sends the CGI as part of the ULI to the AMF.”*

Therefore, in [2] the following has been proposed:

* *Proposal 1: UE to report its coarse GNSS coordinates immediately after AS security/connected mode is established.*

During the GTW session held 1st March 2022 on NTN (see RAN2#117-e chair’s notes), the following was discussed

Proposal 1 UE to report its coarse GNSS coordinates immediately after AS security/connected mode is established.

-       Thales clarifies that the proposal is to send the coarse UE location information.

-       Apple thinks we still need user consent and the UE location info from the UE cannot be trusted. Mediatek agrees

-       QC thinks the user consent in sending the coarse UE location could be implicit

**  RAN2 reconfirms that, in connected mode, UE location information can be sent to the NG-RAN. FFS if full UE location information based on user consent or coarse UE location information.**

**  Discuss offline whether coarse UE location info can be sent without User Consent**

## 2.1 Coarse UE location and User consent ?

**Question 2.1: Whether this coarse UE location information sending in connected mode require user consent and if yes, provide detailed justification ?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/no** | **Comments** |
| Thales | No | Given that the information is sent once AS security is activated. It is no longer a privacy issue.In TN, NG-RAN knows the Cell Id in which the UE is located. Hence, in NTN, the NG-RAN will know the coarse UE location information with the same granularity as typical TN cells in rural areas (e.g. ~2 km)About the trust question: If the UE purposely report a false UE information, this will impact the service efficiency (e.g. emergency call) and hence it would be detrimental for the user.  |
| MediaTek | Yes | Sending location information without user consent should not be supported. UE should not be forced or mandated to send the location information. |
| OPPO | Yes | How RAN2 can determine that whether the coarse UE location information sending in connected mode requires user consent without the input of SA3/SA3-LI?In our understanding, unless SA3/SA3-LI could confirm that, we should consider that even for coarse UE location sent in connected mode the user consent is still required. |

## 2.2 When to send the UE location information ?

There could be two options for the sending of the UE location information to the NG-RAN:

Option 1: Immediately after AS security/connected mode is established and then periodically (FFS period). The sending would be enabled/disabled by the operator by RRC dedicated configuration on a per-UE basis

Option 2: Upon specific request from NG-RAN (via RRC command)

**Question 2.2: Which option, do companies prefer?**

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| --- | --- | --- |
| **Company** | **Opt1/Opt2** | **Comments** |
| Thales | Opt1 or Opt2 | What matters is that an accurate CGI determination in ULI for PDU session establishment is mandated for efficient service set-up (e.g. emergency call) |
| MediaTek | Neither | NG-RAN can get it from Core Network. UE can use NAS message to send it to the network. NAS messages are typically security-protected. |
| OPPO | Neither | Both options require user consent and we should wait for SA3’s response. |

**[Rapporteur summary]:**

…

## 2.3 What format for the UE location information to be sent ?

**Question 2.3: What format for the coarse UE location information to be sent to NG-RAN, do companies prefer ?**

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| --- | --- |
| **Company** | **Comments/Suggestions** |
| Thales | The UE location information could correspond to the 24 bits of longitude/latitude of GNSS coordinates.If coarse UE location is adopted, X MSB bits out of the GNSS coordinates could be selected corresponding to ~2km granularity |

**[Rapporteur summary]:**

…

# 3. Summary and Proposals

# 4. References

1. R2-2203829 (S2-2201540) LS Response to LS on UE location during initial access in NTN (Qualcomm)
2. R2-2203569 WF for UE location during initial access in NTN (Thales, Leonardo, Avanti, ESA, Sateliot , Omnispace, Novamint, Hispasat, Gatehouse, Hughes network systems, Inmarsat, Viasat, CTTC, Intelsat, Kepler, Ligado, Magister solutions, SES, Airbus)

# Contact information

|  |  |
| --- | --- |
| Company | Delegate contact |
| COMPANY\_NAME | NAME (email@address.com) |
| Thales | nicolas.chuberre@thalesaleniaspace.com |
| OPPO | Haitao Li (lihaitao@oppo.com) |
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