

[95e-19-LS-DronesLoc] - Version 0.0.5
RAN

3GPP TSG RAN#95e RP-220879

Electronic Meeting, March 17 - 23, 2022

Agenda Item: 7

Source: Ericsson

Title: Moderator's summary for discussion [95e-19-LS-DronesLoc]

Document for: Information & Discussion

1 Introduction

RAN2 received an LS from ETSI TC LI in R2-2110295 that raised doubts whether LTE/NR positioning mechanisms can meet regulatory requirements in use cases where the UE is in a drone. RAN responded in RP-213674 that the 3GPP positioning features for both LTE and NR can meet the regulatory and commercial requirements described in 3GPP TR 38.855.

ETSI TC LI sent a follow-up LS in RP-220030 stating that the TR 38.855 is not usable as a 3GPP external reference. They kindly requested clarification on when the normative work would be done and where it would be specified.

2 Initial Round

2.1 Discussion

Two docs discuss the matter and propose very similar draft LS responses. While the proposed response in RP-220665 explicitly lists the impacted specs for NR and LTE, the proposed response in RP-220134 refers to the table of impacted specs in the Rel-16 and Rel-17 WIDs:

Overall Description:

TSG RAN thanks ETSI TC LI for their liaison titled "LS response to 3GPP RAN on Location Services: Drones".

RAN has standardized NR positioning in Rel-15, Rel-16, and Rel-17. Like other features in 3GPP, positioning has not been specified specifically for one use case (e.g., drone positioning) but in a use case agnostic mannertargeting any commercial use case or meeting regulatory requirements. The WI summaries can be found in RP-201987 for Rel-16 and [TBD] for Rel-17.

In TSG RAN, requirements are captured in Technical Reports (TRs). Only the specified functionality is captured in Technical Specifications (TSs) which usually contains the normative specification. The list of TSs

impacted by the positioning Work Items can be found in the corresponding Work Item Descriptions, i.e., RP-191156 for Rel-16 and RP-210903 for Rel-17.

Action:

TSG RAN asks ETSI TC LI to take the above information into account in their future work.

During the Initial Round, please provide your comments on the above matter and the above draft LS response.

**Feedback Form 1: Comments on the proposed LS response to
ETSI TC LI**

1 – Samsung Electronics Co.

No strong view but we think the draft provided in RP-220134 looks better than RP-220665, since it captures the 3GPP status more precisely (like '*positioning has not been specified specifically for one use case*'). The reference of WI summary for Rel-17 can be updated to RP-220804.

2 – Guangdong OPPO Mobile Telecom.

The WIDs have already explicitly listed the impacted technical specifications thus it would be good to use as a reference. No strong view on which draft LS is used.

3 – ZTE Corporation

We are supportive of the reply LS. It is good to use references for the list of TSs. However, WID just lists previous/legacy impacted TSs, that may not be concise. For example, RP-191156 does not contain TS 37.355 which is a very important specification for NR Rel-16. In addition, we are OK to only list NR TSs/WIDs (without LTE ones) for simplicity, but it is better to clarify the TSs we provided are for NR.

4 – VODAFONE Group Plc

I think it is better to list NR TSs and LTE TSs to be complete. Is there any reason not to do it?

5 – Apple AB

We think it is fine to provide references to both the WIDs and the impacted TSes. Also, we think both NR and LTE references should be added.

6 – Beijing Xiaomi Mobile Software

We agree, with the comments above that both NR and LTE WIDs and impacted TSs should be included in the response.

7 – Qualcomm Incorporated

We have a slightly different view on how to handle this LS communication, as clearly there is some ongoing confusion, possibly because of the LSs going back and forth from RAN and RAN2 and ETSI TC LI only.

One fundamental comment: LI requirements in 3GPP system are defined by SA3-LI, not RAN or SA1. In this respect, reference to or further clarification on TR 38.855 would not be very relevant at this point. The latest TS (not a TR) for LI requirements is TS 33.126 and there are a lot of requirements related to location and positioning.

So, we think the right approach for RAN at this point would be to refer the LS to SA3-LI with action/request to comment related to requirements specific to drones in their spec (TS 33.126), if any. SA3-LI should reply to this LS from 3GPP LI perspective. As SA3-LI is in CC now, we should consider bringing them into "To" and avoid replying further to TC LI from RAN (or RAN2) directly.

8 – ZTE Corporation

We have different views from Qualcomm. In the LS, ETSI TC LI clearly asks 'where normative work resulting for Positioning of Drones will reside', so it is needed to feedback NR/LTE RAN specs which specifies the normative work for positioning methods. After checked TS 33.126, it seems nothing related to positioning methods and specific positioning requirements. Further, the LS has been CCed to SA3LI, they may reply if they think needed.

9 – CATT

We are fine to add these WIDs and TS/TRs in the reply LS. It is also fine to us to say "3GPP NR positioning is specified in a use case agnostic mannertargeting any commercial use case or meeting regulatory requirements." However, it might be better to make it clear that 3GPP has not specifically evaluate the positioning performance for the two uses cases mentioned in ETSI LS R2-2110295. One potential factor that may impact the NR positioning performance for drone applications is that the beam direction of TRP antennas are normally down-tilted toward to ground. Since the drone normally fly much higher than the TRP antenna, it may potentially impact the number of the TRPs that the drone UE can received in a real environment, which in turn, which may potentially impact on the positioning accuracy of the drone applications. Thus, if the reply LS wants to say 3GPP NR positioning can meet the regulatory requirements for drone application, it might be prudent to add some conditions/assumptions, e.g., *when the number of ground TRPs as well as TRP antennas beam directions are properly deployed for supporting drone positioning applications.*

10 – HUAWEI TECHNOLOGIES Co. Ltd.

[Huawei, HiSilicon] OK to have both LTE ad NR covered. The draft LS from Ericsson is a good baseline. We propose to add "in the WID the reference of affect specs can be found" after the sentence "*impacted by the positioning Work Items can be found in the corresponding Work Item Descriptions, i.e., RP-191156 for Rel-16 and RP-210903 for Rel-17*".

11 – Ericsson LM

In response to QCs alternative approach: We think RAN should stick to answering the LS questions which we think the above LS-text does.

And further, the ZTE proposed reply brings up again the meeting or requirements. But this was already concluded on in RAN#94, and we replied this to ETSI TC LI. Now we should instead just answer the follow-up questions from ETSI TC LI, and the LS-text above does this.

Regarding the detailed wording of the LS, we can agree to list the normative TSs explicitly and to update the "TBD" with the Rel-17 WI summary.

12 – Intel Corporation (UK) Ltd

We agree with the Qualcomm observation that there seems to be some ongoing confusion related to this LS exchange.

From RAN point of view, I think the simplest approach is to simply respond to their request for where the normative work has been specified, although I have some doubts that they will find it easy to extract the information that they are looking for from the specs. No strong preference between referencing the WIDs or listing explicitly

I think we could also point out that within 3GPP the requirements related to LI are the responsibility of SA3LI. I'm sure that they are already aware of this but it would serve as a reminder of the appropriate communicate route if they have questions over whether the 3GPP system supports certain requirements.

13 – Nokia Corporation

We are fine with the LS from Ericsson as basis, including the few additions for the both NR and LTE references

2.2 Summary and next step

Everyone except one company supported sending a response LS from RAN back to ETSI TC LI.

One company proposed to forward the LS to SA3 LI (instead of responding from RAN) and ask SA3 LI to comment on LI requirements related to positioning. However, it was commented that this was not in scope of the incoming LS. The moderator proposes to cc SA3 LI in the LS response from RAN and let SA3 LI decide whether they want to comment further.

One company discussed the conditions in which 3GPP systems can meet requirements. As already discussed during RAN#94e, it should be clear that 3GPP only checks requirements in their well-defined evaluation scenarios. Meeting (regulatory) requirements in real network depends on the actual deployment, traffic load, equipment quality, environment, etc. The moderator proposes not to discuss this in the response LS.

It was discussed whether normative specs should be listed directly or via reference to the latest WIDs. Although a long list of specs doesn't look nice, the moderator will adopt the proposal to add both. It was further discussed to also list the LTE specification. In order to avoid even longer lists of specs, a corresponding statement was added in textual form.

The reference to the Rel-18 positioning WI summary should be updated. The moderator will use RP-220804 and check later in the plenary whether there is any revision of 804 available.

A draft LS response, where the above updates were made, is available in the inbox.

3 Intermediate Round

3.1 Discussion

In the Intermediate Round, please provide your comments to the draft LS available in the inbox.

Feedback Form 2: Comments on the draft LS

1 – Futurewei

The incoming LS specifically requests clarification on when the normative work would be done and where it would be specified. Forwarding to SA3-LI is not appropriate because SA3-LI is not in the best position to address what and when the normative work was done in RAN. As such we agreed with how the moderator proposes to handle this. We are fine also with the referencing of both the LTE and NR specs. Perhaps in the last sentence of the draft LS we can clarify the meaning of "corresponding": The corresponding TSs (i.e. same specification number) in the 36-series to the above listed specs of the 38-series are those containing the normative specifications for LTE positioning.

2 – Beijing Xiaomi Mobile Software

some clarity to the "corresponding TSs" could help.

Also the June and Sept TSGs are no longer TBC

3 – Qualcomm Incorporated

If RAN wants to reply, firstly we agree with Intel's comment above: we could also point out that within 3GPP the requirements related to LI are the responsibility of SA3-LI. It would serve as a reminder of the appropriate communicate route if they have questions over whether the 3GPP system supports certain requirements. We understand SA3-LI is already in CC but indicating this does not hurt.

Secondly, note that the LS communication was/is primarily for LTE (see R2-2110295 opening statement: "ETSI TC LI kindly asks for clarification on report 3GPP TR 36.777 Study on Enhanced LTE Support for Aerial Vehicles.")

So, the reply LS should list the 36.xxx series and then we can have a statement similar to in the updated draft to say corresponding 38-series covers NR.

Further, as discussed in RAN#94e extensively and concluded, we have concerns to give any indications that Drones regulatory requirements in various scenarios are indeed met by current positioning spec, as that was never studied. So this sentence in the draft needs to be updated as shown here: "Like other features in 3GPP, positioning has not been specified specifically for one use case (e.g., drone positioning) but in a use case agnostic mannertargeting any commercial use case or meeting regulatory requirements."

4 – VODAFONE Group Plc

we support the LS as in the draft. No strong opinion if we list LTE spec first or NR, but in my view both should be included in the LS.

5 – Apple AB

We are fine with the draft LS. We would be also OK to explicitly list the LTE specs.

6 – Samsung Electronics Co.

We are also fine with the draft LS.

7 – CATT

We are fine to explicitly list the LTE specs. And as we commented above in the first round, it is better to give an example on how to support drone positioning for easy understanding, e.g.

RAN has standardized NR positioning in Rel-15, Rel-16, and Rel-17. Like other features in 3GPP, positioning has not been specified specifically for one use case (e.g., drone positioning) but in a use case agnostic mannertargeting any commercial use case or meeting regulatory requirements. E.g. in NR system, to meet regulatory requirements for drone positioning, the number of ground TRPs as well as TRP antennas beam directions should be properly deployed. The WI summaries can be found in RP-201987 for Rel-16 and RP-220804 for Rel-17.

This is just an example, whether or how to reflect it can be discussed.

8 – ZTE Corporation

We are OK with the draft LS. It is better to remove the following as some use cases were not verified before.
~~targeting any commercial use case or meeting regulatory requirements~~

9 – Qualcomm Incorporated

In response to CATT's comment above: we think it would not be straightforward by RAN to add the new sentence without having done any evaluations whether proper deployment of the ground TRPs number and/or TRP antenna beam directions can guarantee all UAV regulatory requirements for different scenarios that were brought up in original LS. Instead, if companies prefer we would be fine to have something like "RAN WGs have not evaluated the accuracy of positioning for all UAV scenarios, which may be done as part of future work."

10 – Intel Corporation (UK) Ltd

The sentence "Only the specified functionality is captured in Technical Specifications (TSs) which usually contains the normative specification" reads a bit strangely, as I think our TSs always contain normative specifications. Hence, the second part can be deleted. I.e. "Only the specified functionality is captured in Technical Specifications (TSs) ~~which usually contains the normative specification.~~"

As commented by others, the sentence on 'corresponding TS' could be improved. The suggested text from Futurewei looks reasonable.

As commented in the Initial Round, and also supported by Qualcomm above, it may be useful to add "Within 3GPP the requirements related to LI are the responsibility of SA3-LI".

Otherwise the LS looks OK.

11 – HUAWEI TECHNOLOGIES Co. Ltd.

[Huawei, HiSilicon] We are Ok with the rapporteur draft LS Out. If we want, we could explicitly list the LTS specs as other also suggested/prefer. On the WI summaries Tdoc numbers, we note that the NR one needs to be updated, but more in general it could be better to refer to the TR containing the Release WIs summaries, i.e. TR21.916 and TR21.917, rather than single Tdocs.

12 – Nokia Corporation

We are fine with the draft LS. In general with drones the issue is not that you hear too few cells but rather you hear too many as you have line-of-sight to many sites, down tilting is not making that major difference there (and taking benefit of the antenna directivity in 5G capable UAV can improve the situation). For positioning purposes you on the other hand have excellent satellite visibility.

3.2 Summary and next step

Most companies were basically fine with the draft LS. The majority of comments were about the exact way of capturing the list of LTE specs. To address these comments, the updated draft LS will explicitly list also the LTE specs of the 36 series. The moderator will also replace the references to the RAN level WI summaries with references to TR 21.916 and TR 21.917. Furthermore, the future meeting dates were updated.

One company commented on the explanation that TSs usually contain normative specification. This wording was chosen to consider that TSs can also contain informative elements, but the moderator agrees that the sentence may sound a bit odd. So in the updated draft LS the word "usually" will be removed.

Again, it was discussed by a few companies when/if regulatory requirements can be met. Again, the moderator would refrain from discussing this aspect in the LS response in more detail. However, the updated LS response will clarify the wording (by removing "meeting").

Finally, LI requirements were discussed. As those are out of scope of the original LS, the moderator would refrain from touching upon them.

An updated draft LS response, where the above updates were made, is available in the inbox. The moderator hopes that this version can be approved.

3.3 Proposed conclusion

The moderator proposes to agree the updated version of the LS.

4 Final conclusion

After further comments via email, it was decided to do one more update "...in a use case agnostic manner ~~targeting any commercial use case or regulatory requirements.~~" and to approve the response LS in RP-220954.