RAN1-110bis-e-NWM-AI5-LSs-02 - Version 0.0.6
RAN1
https://nwm-trial.etsi.org/#/documents/8216

3GPP TSG RAN Meeting #110bis-e

Electronic meeting, 10 - 19 October 2022

Tdoc: R1-2210525

Agenda item: 5

Source: Huawei (moderator)

Title: Moderator's summary for [110bis-e-AI5-LSs-02] Email discussion on TP for TR37.985

Document for: Discussion and decision

1 Introduction

TR 37.985, "*Overall description of Radio Access Network (RAN) aspects for Vehicle-to-everything (V2X) based on LTE and NR*", was established by RAN from Rel-16 to provide a summary at approximately stage-2 level of the RAN features introduced for support of V2X, primarily with an audience of external organizations in the V2X industry who might benefit from a 'one-stop-shop' type of summary without needing to dig deeply into 3GPP TSs.

In LS R1-2208330, RAN2 inform RAN1 of an agreed TP (R2-2208815) arising from Rel-17 work on UE-to-network relays and sidelink discovery, but they defer to RAN1 the decision whether to include the TP into TR 37.985.

1.1 Company views submitted to RAN1

The moderator interprets the submissions to RAN1 as being clearly grouped:

- Support inclusion of the TP: ZTE/Sanechips, MediaTek, OPPO, Ericsson.
- Do not support inclusion: CATT/GOHIGH.

Ericsson additionally provide some editorial changes to the TP.

2 First round discussion

The moderator notes that the NR sidelink relay WID (RP-212819) does not mention V2X as a justification, and does not include TR 37.985 as an impacted specification. This is a different situation than, notably, Rel-17

inter-UE coordination, where the WID directly includes V2X scenarios and use cases, and the TR is identified for impact. From this perspective, it appears that RAN may not have conceived sidelink relay/discovery as particularly V2X features, but rather as general sidelink features.

The moderator further notes that the NR sidelink relay TR 38.836 also does not appear to contemplate V2X scenarios or usage, since the only mentions of V2X in that TR are to re-use its Rel-16 procedures where no change is needed.

The other viewpoint is that, for being a general sidelink feature, sidelink relay/discovery could, in principle, be applied to V2X. However, CATT/GOHIGH point out that is not clear from specifications whether V2X services can use the features in fact.

In any case, the moderator has provided an editorially-updated version of the TP in the drafts folder, temporarily showing change-on-change: https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Inbox/drafts/5(Inc_LS)/%5B110bis-e-NWM-AI5-LSs-02%5D. Comments on this will be requested in a later round, if we proceed with a TP.

Question 1: Do you support or not support inclusion of the modified TP into TR 37.985?

- **If your company supports inclusion, what is the justification within the scope of the TR being "Overall description of Radio Access Network (RAN) aspects for Vehicle-to-everything (V2X) based on LTE and NR"?**
- **If your company does not support inclusion, what is your suggested handling of the RAN2 request? By default, we would simply send a reply LS saying so (to be drafted later).**

Feedback Form 1: Answers to Q1

1 – vivo Communication Technology

We are not supportive of including this changes/TP to TR 37.985. Firstly, the TR 37.985 is not mentioned as an impacted specification of the SL relay WID, as also mentioned by moderator. Moreover, in our view the NR V2X service cannot use the SL relay function, at least in current release - the higher layer functionality (i.e., NAS layer) are not defined to utilize the SL relay for V2X.

2 – Guangdong OPPO Mobile Telecom.

In our view, the reasons cited for not including the TPs for SL Relay and SL Discovery are just 3GPP procedural / formality issues. In practice nothing stops a 3GPP feature from being implemented and used for something that was not originally included in the WID or foreseen by 3GPP. These two features may one day be used and proven to be beneficial for V2X. From this perspective, the TP should be implemented in the TR, which is meant for readers outside 3GPP. It is up to them to decide whether to implement and deployed them for V2X. Hence, we support to include the TP in the TR.

3 – ZTE Corporation

We support including the TP in the TR. Regarding editor's comment on whether SL Relay and Discovery are related to V2X services, the following reference may provide some justification on why these features are related. The following extrait is copied from the WID (RP-213585)

3GPP RAN approved a study item "Study on NR Sidelink Relay" in Rel-17 in order to cover the en-

hancements and solutions necessary to support the UE-to-network Relay and UE-to-UE Relay coverage extension, ***considering wider range of including V2X, Public Safety and commercial applications and services.***

It can be observed that the V2X use cases are also targetted by the WID in the first place. More specifically, in TR 22.886, use case "tethering via vehicle" is captured in clause 5.18 of 5G V2X service. This use cases is essentially the usage of UE-to-Network relay for V2X service. The requirement as copied asd follows:

"[PR.5.18-002] The 3GPP system shall enable a UE supporting a V2X application to discover another UE supporting V2X application that can offer access to the network.

[PR.5.18-003] The 3GPP system shall enable a UE supporting a V2X application to switch the network access from direct 3GPP connection to an indirect 3GPP connection via another UE supporting V2X application that is connected via 3GPP access to the 3GPP core network, and vice versa.

[PR.5.18-004] The 3GPP system should provide integrity and confidentiality protection (end to end) for the network access traffic of a V2X UE via another such UE."

Considering above, we believe the agreed TP from RAN2 shall be kindly incorporated into TR 37.985 subject to editor's improvement on wording (to be discussed after companies agree the inclusion)

4 – Ericsson GmbH

Even though we think that the TP can be included in the TR 37.985, we sympathize with the comments from other companies about the relevance of including the SL relay and SL discovery into the TR 37.985 (since it is intended for V2X) and also based on the comments from the FL regarding the impacted specifications and the justification of the WID.

One potential compromise solution is to include, e.g., in the introduction of TR 37.985, some text indicating that the SL relay and SL discovery features are specified and can be used by V2X applications/services, but they are not originally intended for it.

5 – Classon Consulting

[for FUTUREWEI] we lean towards not including the TP as it is not necessary to try to update the TR now with other functionality that could possibly be used for V2X. At this point such combinations of features can probably be better discussed outside of 3gpp. That said, if there is a strong will to do so we could probably accept some mention, perhaps like the compromise from Ericsson.

6 – GOHIGH DATA NETWORKS TECH.

As noted by the moderator, the NR sidelink relay WID does not mention V2X as a justification, and also does not include TR 37.985 as an impacted specification. And in our view, the justification of Rel-18 NR sidelink relay enhancements WID does not intend to say that Rel-17 NR Sidelink Relay WID can support V2X use case with the following description in the WID (RP-213585).

However, the follow-up Rel-17 work item "NR Sidelink Relay" included only limited features due to the lack of time. In particular, it supports only UE-to-Network relay and its service continuity solution is limited to intra-gNB direct-to-indirect and indirect-to-direct path switching in Layer-2 relay.

Until now, it is still not clear whether Rel-17 UE-to-Network relay and sidelink discovery can be supported by V2X services since this issue has never been fully discussed. Therefore, it is not preferred to merge the related TP to TR 37.985 in the current stage.

7 – Samsung R&D Institute UK

V2X is one of the use cases for sidelink. Thus, we think SL relay and SL discovery can be included in TR 37.985. In the above, ZTE provided references justifying why these feature are related. Also, it is not clear for the comments from vivo and GOHIGH that SL relay and SL discovery cannot be supported for V2X services. Anyway, in RAN1 point of view, we understand that all SL features can be used for V2X.

8 – Beijing Xiaomi Mobile Software

Since TR 37.985 is introduced to provide a ”one-stop-shop” like summary for V2X industry, we support to include SL relay and SL discovery into the TR. Even if SL relay and discovery are general SL features, we do not see why these features cannot be used in V2X services.

9 – Nokia Corporation

We support the inclusion of the TP to 37.985. We think that SL relay and discovery can be used for V2X.

2.1 First round summary

There are some mixed views. Moderator responses on the various points:

- OPPO: Clearly, we as RAN1 and in the companies have to respect 3GPP procedures and formalities. If (and that is: *if*) 3GPP did not provide these features for V2X, then they are not in-scope to the TR, even if someone creates an unexpected use for them. Otherwise the argument given extends to simply including almost every RAN feature from any RAT in any Release in the TR.
- ZTE and Samsung (part): The citation is from a Rel-18 SL relay enhancements WID, and not the Rel-17 SL relay (original) WID that the incoming LS indicates. Perhaps this suggests that RAN2 should return to the question after Rel-18 if, by then, there is a V2X specific angle to the topic? The point on TR 22.886 seems fair, and the question would be whether those potential requirements were in fact supported for V2X. (NB: Probably you would also refer to TS 22.186).
- Samsung, Xiaomi, Nokia: Understood that your view is relay and discovery can be supported by V2X applications, although this seems to be mostly an assertion rather than a demonstrated point. One thing to note is that merely being a sidelink feature does not make something a V2X feature.
- vivo, CATT/GOHIGH: If it is true that there is something missing in higher layers and hence V2X is not able to use sidelink relay/discovery, this does not seem to have been demonstrated so far (similar as the opposite point above).

3 Second round discussion

In general, it does not seem the moderator can already conclude there is directly a consensus to agree to the CR/TP from RAN2. There is potential in the suggestion from Ericsson to add text to the TR’s introduction to help mitigate concerns, and there is the version of that in Futurewei’s suggestion to have *only* such additional text (if any). However, the exact text from Ericsson might have an issue of RAN1 not being sure whether V2X services in fact can use these features, as per comments from vivo and CATT/GOHIGH.

Therefore the moderator’s way ahead will be:

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- Ask if all companies can agree to the (editorially-modified) TP together with additional text in the TR's introduction, proposed by the moderator. If objections to this, then not pursue the CR.
- Ask if all companies can agree to only the additional text in the TR's introduction, proposed by the moderator. If objections, then not pursue this.

Modified TP/CR v2: https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Inbox/drafts/5(Inc_LS)/%5B110bis-e-NWM-AI5-LSs-02%5D/Moderator_revision_v2_R2-2208815%20TP%20to%20TR37.985%20for%20SL%20Relay.docx

Question 2: Any objections to agreeing both the additional text related to SL relay & discovery in the Introduction, and the (editorially updated) TP from RAN2, in the TP/CR v2?

Feedback Form 2: Q2: Any objections?

1 – vivo Communication Technology

Our SA2 colleague indicates that from SA perspective, the SL relay & discovery feature is not applicable to V2X. That is why we does not agree to the TP/CR (v1). One additional comment is that, if the SL relay & discovery feature is applicable to V2X, why it is mentioned only for NR, but not for LTE, especially given the harmonized higher layer protocol is applied to both LTE and NR V2X?

If companies would like to pursue these CRs, we should first consult with SA2.

2 – Guangdong OPPO Mobile Telecom.

We support of having this TP for the TR.

3 – Qualcomm Incorporated

As in our reply to Q2, we do not think that extending relay and discovery features to V2X is in RAN1's domain.

4 – Nokia Corporation

We don't have any objections to agreeing both texts.

5 – GOHIGH DATA NETWORKS TECH.

As commended in the first round, since there is no evidence to prove that Rel-17 UE-to-Network relay and sidelink discovery can be supported by V2X services, merging the main part of the TP to TR 37.985 is not reasonable. If there is a strong view to adding this feature, further discussion is required among working groups.

6 – ZTE Corporation

First of all, we echo moderator's assessment that the copied WID description is from SL relay enhancement. However, to us, this copied text is an elaboration of the wider range of applications and services in Rel-17 originial WID text "For Release 16, a first version of NR sidelink has been developed and it solely focuses on supporting V2X related road safety services. The design aims to provide support for broadcast, groupcast and unicast communications in both out-of-coverage and in-network coverage scenarios. On top of that,

sidelink-based relaying functionality should be additionally studied in order for sidelink/network coverage extension and power efficiency improvement, considering ***wider range of applications and services***."

Companies' concern seem two folded. Firstly, companies are concerned that the SL relay/discovery feature is not V2X specific, however, this should not be much too worrysome because we already captured the Rel-17 sidelink enhancement features including power saving or DRX related features targetting e.g. commerical and public safety use cases as well.

Secondly, companies are concerned that whether the relay/discovery features can actually be supported by V2X, however, we believe the requirement description from TR 22.886 already reflects some advanced V2X use cases that relies explicitly on the relay/discovery feature specifically as listed in our reply to the first question. Given these texts have already been extensively discussed by RAN2 and agreed, it would be really unfortunate if we end up not capturing them and making the overall V2X related features incomplete.

Question 3: Any objections to agreeing to *only* the additional text related to SL relay & discovery in the Introduction of the TP/CR v2?

Feedback Form 3: Q3: Any objections?

1 – Guangdong OPPO Mobile Telecom.

This is not our preference.

2 – vivo Communication Technology

Our preference is to consult with SA2 before agreeing the TP/CR.

Having said that, the additional text in the introduction (copied below) seems quite general. Thus, we would not object to only agree this text.

"Sidelink relay and sidelink discovery features have also been specified. Although developed originally as generic sidelink features, they may also be of relevance to some V2X use cases."

3 – Classon Consulting

[for FUTUREWEI] From the arguments and discussion, it seems RAN1 will not be able to agree to the full TP. While not the preference of the proponents, including only this intro text will at least provide *some* mention of the features. We can accept the provided intro text.

4 – Qualcomm Incorporated

We do not agree with the proposal.

The decision to extend relay and discovery features to V2X is not up to RAN1. This is in SA2 domain and impacts higher-layer procedures and specifications.

5 – Nokia Corporation

We are OK to agree this if the full TP is not agreeable. Consulting SA2 is also OK.

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6 – GOHIGH DATA NETWORKS TECH.

Although our first preference is not to include SL relay-related description in TR 37.985 at this stage, we can accept the moderator's way ahead to only include the additional text in the introduction part and finalise the discussion.

3.1 Second round summary

There are objections to both potential ways ahead so, as described, the moderator will not pursue them.

4 Third round discussion

...however, it appears that if SA2 were to 'green-light' the applicability of SL relay and discovery to V2X, the responses may change. It does not seem to be RAN1's responsibility to liaise with another TSG, on behalf of another WG for a TP relating to a WI for which RAN1 had no responsibility, to resolve a question relating to specifications and technical issues out of RAN1's remit. Formulating an appropriate question to SA2, and especially responding to any potential intermediate questions that SA2 may raise (due to the technical nature of the RAN2 TP, etc.), needs to be handled RAN2 in the moderator's view.

A suitable RAN1 response seems to be a reply LS to RAN2 informing them of the situation, with some respectful advice relating to the observations of needing SA2 input; and when RAN2 and SA2 converge either way, the situation should be clear.

In the moderator's view, if we cannot agree on this nature of LS, we will have to reply simply that there was not consensus to include the TP, and saying nothing further, leave RAN2 to decide if they want to take any actions without our advice.

The moderator has put a draft reply LS at this location, the substantive text of which is shown below.

https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Inbox/drafts/5(Inc_LS)/%5B110bis-e-NWM-AI5-LSs-02%5D/draft_R1-22xxxxx_replyLS_SLrelay.docx

Table 1: Text of proposed reply LS to RAN2

1. Overall Description: RAN1 thanks RAN2 for the LS referenced above, providing a text proposal for TR 37.985. RAN1 could not reach consensus to add the text to the TR, due to disagreement on whether sidelink relay and/or discovery are in fact applicable to V2X. During the discussion, it was observed that SA2 input would be needed to know whether sidelink relay and/or discovery are applicable to V2X. Since RAN2 are the lead WG for the sidelink relay WI, RAN1 respectfully relies on RAN2 to conduct exchanges with, for example, SA2 to reach a conclusion on this matter, after which to inform RAN1 of the outcome, if any. **2. Actions:** **To RAN2**: RAN1 respectfully asks RAN2 to liaise with, e.g. SA2 and/or other TSGs/WGs, to conclude on whether sidelink relay and/or discovery are applicable to V2X, and to inform RAN1 of the outcome, if any.

Question 4: Can we agree to the draft LS referenced above?

Feedback Form 4: Company replies

1 – Qualcomm Incorporated

We agree with the draft LS

2 – Classon Consulting

[for FUTUREWEI] OK

3 – ZTE Corporation

We are OK with the moderator's proposed way forward on asking for SA views. However, if we reply this LS and relying on RAN2 for an LS to SA, finally it would still be up to RAN1 to decide whether to include this TP conditioned on SA greenlight. Then the process would be a bit complicated - RAN2 sends an LS to SA, SA replies LS to RAN2 and RAN2 further sends another LS on capturing the TP to RAN1 (this step seems a bit duplicated). Thus we wonder whether we can accelerate the process a bit by directly sending an LS to both SA and RAN2 regarding RAN1's concern on whether SL relay/discovery can be used for V2X use cases. Upon SA confirmation, RAN1 can proceed on the discussion of the TP e.g. TP/CR v2. If not, then RAN2 would also be aware that these texts can not be included by receiving SA2 response and close this issue.

4 – Guangdong OPPO Mobile Telecom.

We are fine with this approach.

A small note, don't we usually include the dates for the next two RAN1 meetings at the bottom of the LS...

5 – Samsung R&D Institute UK

We are OK for this direction and LS from the moderator.

6 – vivo Communication Technology

We are fine with the draft LS reply.

7 – Beijing Xiaomi Mobile Software

we are fine with the reply.

8 – Nokia Corporation

We are fine with the draft LS.

9 – GOHIGH DATA NETWORKS TECH.

We can accept this approach and the draft LS from the moderator.

10 – LG Electronics Inc.

We are fine with the draft LS suggested by the moderator.

11 – Ericsson GmbH

We are OK with the draft LS

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4.1 Third round summary

All companies agree we go with this LS.

To ZTE, it was a route considered, but because it requires RAN1 to formulate a question to SA2 and also pre-empts the possibility that RAN2 might choose to liaise with other committees than only SA2 (although this seems unlikely), it did not seem the better option. It anyway does not surely avoid the triangulation, since SA2 and RAN2 may need to converse if, e.g. SA2 want clarifications, before a final response comes back to RAN1 from whichever WG. It may be suggested in RAN2 to keep RAN1 in cc to the LS exchange, so that we will see the process and this might save a step; or, RAN2 can ask SA2 to directly respond to us, if that is thought appropriate.

We can proceed by email to request agreement to the draft LS in R1-2210493, in the inbox.

https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_110b-e/Inbox/R1-2210493.zip

5 Conclusion

A reply LS to RAN2 as per the draft LS above was agreed in R1-2210494.

5 References

[1] R1-2208330 LS to RAN1 on TP to TR 37.985 RAN2, ZTE

[2] R1-2208815 Discussion on TP to TR37.985 for inclusion of SL relay description OPPO

[3] R1-2208914 Draft Reply LS on TP to 37.985 CATT, GOHIGH

[4] R1-2209774 Draft reply LS on TP to TR 37.985 ZTE, Sanechips

[5] R1-2210121 [Draft] Reply LS on TP to TR 37.985 Ericsson

[6] R1-2210122 Discussion on LS on TP to TR 37.985 Ericsson