**3GPP TSG-RAN WG2#125 R2-24xxxxx**

**Athens, Greece, 26 February-1 March 2024**

**Agenda Item: 7.2.4**

**Source: MediaTek Inc.**

**Title: [M001] PRU definition in TS 37.355**

**Document for: Discussion, decision**

1 Introduction

There is no definition of a Positioning Reference Unit (PRU) in v18.0.0 of TS 37.355. This document addresses the ASN.1 issue M001 that was raised on this point.

2 Discussion

By construction, LPP is defined between a positioning server (LMF or SLP) and a target device (defined as “e.g., UE or SUPL SET”). A PRU is modelled as a UE with special behaviour, mainly the ability to report a “known” location and measurements at the same time, and LPP needs to be able to terminate between a server and a PRU; it should thus be explicit that a PRU is a kind of target device.

Throughout TS 37.355, we have used “target device” instead of “UE”, and we consider it expedient to give a clear definition of a PRU as a target device (rather than identifying it only as a UE).

**Proposal 1:** Define a PRU as a target device in TS 37.355.

The following definitions were suggested in issue M001 and the comments on it:

1. A target device capable of reporting measurements and its known location simultaneously, and used as a reference location for positioning a target UE.
2. Refers to a Positioning Reference Unit realized by a UE as defined in clause 5.4.5 of TS 38.305 [40].
3. A target device capable of reporting measurements and its known location simultaneously, and used as a reference location for positioning a target UE, as defined in clause 5.4.5 of TS 38.305 [40].
4. A UE at a known location can perform positioning measurements (e.g., RSTD, RSRP, UE Rx-Tx Time Difference measurements, RSCP, RSCPD, etc.) and report these measurements to a location server, as defined in clause 5.4.5 of TS 38.305 [40].

Definitions 1 and 3 invoke the “target device” language, but the others could be adapted trivially to say “target device” instead of “UE”. It was also observed in the comments that “known location” is a bit of a misnomer, and clear language should be considered to indicate that the location of a PRU is also an estimate, albeit not an estimate based on the simultaneously reported measurements.

It is worth noting that the PRU is not actually *defined* in TS 38.305. Clause 5.4.5 describes the operation of a PRU (using the phrase “known location” several times), but it does not actually say that a PRU is a target device, which is a critical point since it is required for the PRU to be an LPP endpoint. (It does say “From a location server perspective, the PRU functionality is realized by a UE with known location”, which suggests that the PRU should be interpreted as a UE but does not speak clearly to the issue of protocol endpoints.) This clause also does not specify that a PRU supports reporting of measurements and location together, which is more appropriately described in stage 3.

Considering all the inputs, we suggest the following language as a baseline:

**Proposal 2:** Define a Positioning Reference Unit in TS 37.355 as “A target device capable of reporting positioning measurements and its location simultaneously, with the location determined independently of the measurements, as described in clause 5.4.5 of TS 38.305 [40].”

The detailed wording can be further discussed, but we suggest that it should not be the focus of extensive meeting time and can be incorporated into a rapporteur CR.

3 Conclusion

This document promulgated the following proposals:

**Proposal 1:** Define a PRU as a target device in TS 37.355.

**Proposal 2:** Define a Positioning Reference Unit in TS 37.355 as “A target device capable of reporting positioning measurements and its location simultaneously, with the location determined independently of the measurements, as described in clause 5.4.5 of TS 38.305 [40].”