3GPP TSG-RAN WG2 Meeting #131 R2-25xxxxx

Bangalore, India, 25th – 29th of August 2025

**Agenda item: 8.6.1**

**Source: Nokia**

**Title: Report from [POST130][117][MOB] (Nokia)**

**WID/SID: NR\_Mob\_Ph4-Core - Release 19**

**Document for: Discussion and Decision**

# 1 Introduction

This is to discuss the following aspects:

* [POST130][117][MOB] (Nokia)

 **Scope:** Discuss issues of coexistence between L1 event triggered MR and mTRP (source cell).

1. Whether to allow coexistence between event triggered MR and mTRP (source cell)?
2. How to define the current beam?

 **Intended outcome:** Summary discussion.

 **Deadline:** Long email discussion

Further details are given in the following sections.

# 2 Discussion

During the discussion in April 2025 (RAN2#129bis) the following agreement has been captured in the Chairman notes [1]:

|  |
| --- |
| * Will be revisited in August. If one simple solution is not prepared / agreed until / in August meeting, we will not apply mTRP in Rel-19 event-triggered MR.
 |

In line with the aforementioned decision, the topic has not been discussed in May 2025 (RAN2#130). Instead, this e-mail discussion has been approved to take advantage of the time in between RAN2#130 and RAN#131 meetings to clarify all aspects that might need to be resolved for mTRP in the serving cell to become a part of Rel-19 event-triggered measurement reporting (MR) design.

The coexistence between mTRP and event-triggered L1 MR has been described in numerous papers submitted to RAN2#130 and the preceding meetings. Relevant TDocs are listed in References section, see at least [2] - [7]. Please note that References section does not provide all possibly relevant 3GPP papers but is just supposed to confirm what is considered in this post-meeting e-mail thread had significant support within RAN2 community.

Please also note that the aim of this document is not to elaborate in detail on the technical merits of mTRP as such. However, as has been briefly introduced in [2], with mTRP, the serving cell can schedule the UE from two transmission/reception points (TRPs). This enhances the coverage, reliability and possibly also the achievable data rates. Thus, from the network’s perspective it is preferable if such scheme can coexist with what is being defined in Release 19 (i.e. event-triggered L1 measurement reporting).

## 2.1 Current beam selection for event evaluation and MR MAC CE

RAN2#130 has tasked the rapporteur to resolve how to define the “current beam in MR MAC CE”. As a brief reminder, in the latest version of the endorsed MAC CR the corresponding MR MAC CE looks as follows [8]:



Fig. 1. Event Triggered L1 Measurement Report MAC CE - as proposed in the endorsed CR.

As can be seen in Fig. 1, the last octet is used for sending the RSRP measurement result (7 bits) corresponding to the serving beam (a.k.a. current beam). The single remaining bit in this octet is reserved (R). RAN2 needs to decide how this serving beam is selected in case of mTRP operation. In the papers submitted to RAN2#130 (e.g. [2] - [7]) various approaches have been presented, e.g.:

1. UE should use the best beam of the two current beams for event evaluation [2]
2. It is up to the UE which of the two beams it uses for event evaluation [7]
3. Network can indicate which beam the UE shall use

Probably all of the listed options are feasible and not overly complex (i.e. can be finalized within Release 19 timeline). Companies are encouraged to express their preference below.

**Question 1: How the UE selects the serving beam to be included in the MR MAC CE when mTRP is configured in the serving cell? Please select from the options listed below:**

1. **UE should use the best beam of the two “current beams” for event evaluation**
2. **It is up to the UE which of the two beams it uses for L1 event evaluation**
3. **Network indicates which beam the UE shall use**
4. **Other**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option** | **Comments** |
| Nokia | a) | Using the best beam (in terms of RSRP) is an acceptable option. We could be also OK to leave the selection to the UE (i.e. option b)).  |
| ZTE | a) | Option a) is simple and straightforward. From UE implementation perspective, the UE can also consider both if the UE does not want to compare which serving beam is the best.  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Summary for Q1:**

## 2.2 Association between the serving beam and the reported RSRP

In [2] it was also underlined that MR MAC CE may possibly include also an indication for which beam/TCI the RSRP value is reported. As can be seen in Fig. 1 current MR MAC CE has no ID information for the serving beam. It may not be problematic when mTRP is not used. However, in case of mTRP operation and if option a) or option b) listed in Q1 is adopted, the NW does not know what the reported RSRP value corresponds to. Thus, in rapporteur’s view such indication could be included in MR MAC CE, of course subject to the ultimate decision taken for Q2. It is worth underlining the last octet in MR MAC CE comprises one reserved (R) bit which can be used to indicate one of the two TCI states in mTRP operation.

**Question 2: Do you agree to indicate in MR MAC CE when mTRP is used which TCI state is associated with the reported RSRP value for the serving/current beam?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Answer (Yes/No)** | **Comments** |
| Nokia | Yes | As answered to Q1, we believe it could be acceptable to the NW to let the UE choose which of the beams is selected as the “current beam” and therefore used for event evaluation. Then the same beam is obviously included in the MR MAC CE. However, NW needs to know the TCI state that the reported RSRPserving is referring to. That is why we suggest to use the reserved bit in the last octet for this purpose.  |
| ZTE | No | The benefit of reporting serving TRP info is a bit unclear to us. In our view, the candidate beam information is more important in MR MAC CE, as long as the best serving beam is considered in event evaluation (option a), it does not matter whether it is from TRP-0 or TRP-1. If Option b is adopted, it means the UE may use different serving beams for event evaluation during TTT (e.g. serving beam#1 from TRP-0 at T0, serving beam#5 from TRP-1 at T1), then, it is unclear which TRP Id needs to be indicated in the final MR MAC CE.  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Summary for Q2:**

## 2.3 Whether to allow the coexistence between mTRP and event-triggered L1 MR

RAN2#130 has also tasked the rapporteur to check whether the companies support the coexistence between mTRP in the serving cell and event-triggered L1 measurement reporting. Thus, we would like to ask the ultimate question:

**Question 3: Do you support specifying the coexistence between event-triggered L1 measurement reporting and mTRP for the source cell? Please consider the technical aspects discussed above (for Q1 and Q2).**

|  |  |  |
| --- | --- | --- |
| **Company** | **Answer (Yes/No)** | **Comments** |
| Nokia | Yes | We agree with the background information given in [2] and in the introduction text in section 2 of this report. With mTRP the serving cell can schedule the UE from two transmission/reception points and thanks to this, the coverage, reliability and data rates can be improved. We also believe the introduction of mTRP coexistence with event-triggered L1 measurement reporting is not complex, as discussed in the preceding subsections. Thus, we see no obstacles in having this supported within Rel-19 framework.  |
| ZTE | Yes | mTRP is a very important deployment scenario in 5G. Also, event-triggered L1 MR is an important feature for L1 measurement triggered LTM. If coexistence cannot be supported, it means the network must disable one of them, either the UE cannot be benefit from mTRP, or the periodical L1 results reporting needs to be configured (which increases signalling overhead and UE’s power consumption). So, such limitation will impact both system and UE’s performance. We agree with Nokia that we should strive for a simple solution that eliminates UE/chipset vendors’ concerns about implementation complexity, but not to just add restrictions.  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Summary for Q3:**

# 3 Conclusion

In this document the following proposals have been made:

# References

1. R2-2502981 *Report from session on R18 SL, R18/19 MOB and R19 NES* 3GPP TSG-RAN WG2 Meeting #129bis Wuhan, China, April 7th – 11th, 2025
2. R2-2504120 *Discussion on the support of mTRP in event-triggered LTM* Huawei, HiSilicon, Nokia, NTT Docomo, OPPO, ZTE, 3GPP TSG-RAN WG2 Meeting #130 St. Julians, Malta, May 19th – 23rd, 2025
3. R2-2504331 *Remaining issues of L1 event triggered measurement reporting* Rakuten Mobile 3GPP TSG-RAN WG2 Meeting #130 St. Julians, Malta, May 19th – 23rd, 2025
4. R2-2504408 *Remaining issues of event-triggered L1 measurement reporting for LTM* Kyocera 3GPP TSG-RAN WG2 Meeting #130 St. Julians, Malta, May 19th – 23rd, 2025
5. R2-2504422 *Discussion on L1 event triggered measurement reporting for LTM* KDDI Corporation 3GPP TSG-RAN WG2 Meeting #130 St. Julians, Malta, May 19th – 23rd, 2025
6. R2-2504472 *Discussion on measurement event evaluation and report* HONOR 3GPP TSG-RAN WG2 Meeting #130 St. Julians, Malta, May 19th – 23rd, 2025
7. R2-2504135 *Final Details on L1 Measurement Reporting Enhancements for Rel-19 LTM* Nokia 3GPP TSG-RAN WG2 Meeting #130 St. Julians, Malta, May 19th – 23rd, 2025
8. R2-2503616 *Running MAC CR for enhanced mobility Ph4* 3GPP TSG-RAN WG2 Meeting #130 St. Julians, Malta, May 19th – 23rd, 2025