3GPP TSG-RAN WG2 Meeting #121 R2-23xxxxx

Athens,Greece, Feb 27th – Mar 3rd , 2023

**Agenda item: 6.7.4**

**Source: ZTE Corporation**

**Title:**  **[AT121][404][POS] TAT timers in RRC\_INACTIVE (ZTE)**

**WID/SID: NR\_pos\_enh-Core**

**Document for: Discussion and Agreement**

# 1 Introduction

This document is to kick off the following email discussion:

* [AT121][404][POS] TAT timers in RRC\_INACTIVE (ZTE)

 Scope: Discuss the CR in R2-2300935 and converge on a consensus version of the agreeable parts.

 Intended outcome: Agreeable CR

 Deadline: Wednesday 2023-03-01 1900 EET

# 2 Contact Information

Respondents to the email discussion are kindly asked to fill in the following table.

|  |  |
| --- | --- |
| Company | Contact: Name (E-mail) |
| OPPO | Liu yang (liuyangbj@oppo.com) |
| Huawei, HiSIlicon | Yinghao Guo (yinghaoguo@huawei.com) |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

# 3 References

1. [R2-2300936](file:///C%3A%5C%5CUsers%5C%5Cmtk16923%5C%5CDocuments%5C%5C3GPP%20Meetings%5C%5C202302-03%20-%20RAN2_121%2C%20Athens%5C%5CExtracts%5C%5CR2-2300936%20Correction%20to%20MAC%20spec%20for%20positioning.doc%22%20%5Co%20%22C%3AUsersmtk16923Documents3GPP%20Meetings202302-03%20-%20RAN2_121%2C%20AthensExtractsR2-2300936%20Correction%20to%20MAC%20spec%20for%20positioning.doc) Correction to MAC spec for positioning ZTE Corporation CR Rel-17 38.321 17.3.0 1536 - F NR\_pos\_enh-Core

# Discussion

## 4.1. First change in R2-2300936

In [1], the contribution provides MAC changes on TA maintenance in RRC\_INACTIVE. The first change is that:

In spec 38.321 section 5.2, the MAC entity shall not perform any uplink transmission except the RA Preamble and MSGA transmission for a Serving Cell only when the timeAlignmentTimer is not running and CG-SDT procedure is not ongoing and SRS transmission in RRC\_INACTIVE is not on-going. Therefore, the legacy wording ‘or’ should be changed to ‘and’.

The proposed change is as below:

|  |
| --- |
| The MAC entity shall not perform any uplink transmission on a Serving Cell except the Random Access Preamble and MSGA transmission when the *timeAlignmentTimer* associated with the TAG to which this Serving Cell belongs is not running, CG-SDT procedure is not ongoing and SRS transmission in RRC\_INACTIVE as in clause 5.26 is not on-going. |

Companies are invited to provide comments on this change.

**Q1: Do you agree with the change above？**

|  |  |  |
| --- | --- | --- |
| Company |  Yes/ No | Comments |
| OPPO | OK | The UE uplink transmission condition could be reasonably relexed |
| Huawei, HiSilicon | OK |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## 4.2. Second change in R2-2300936

In current MAC spec, the description of MAC behaviour when CG SDT timer and pos SRS timer are introduced is as follows:

|  |
| --- |
| The MAC entity shall not perform any uplink transmission except the Random Access Preamble and MSGA transmission when the cg-SDT-TimeAlignmentTimer is not running during the ongoing CG-SDT procedure as triggered in clause 5.27. The MAC entity shall not perform any uplink transmission except the Random Access Preamble and MSGA transmission when inactivePosSRS-TimeAlignmentTimer is not running during the procedure for SRS transmission in RRC\_INACTIVE as in clause 5.26. |

However, the condition of ‘The MAC entity shall not perform any uplink transmission except the Random Access Preamble and MSGA transmission’ should take both SRS TA timer and CG SDT timer into consideration. To be specific, SRS transmission in RRC\_INACTIVE should be considered during the CG-SDT procedure, in the meanwhile, CG-SDT transmission should be considered during the SRS transmission in RRC\_INACTIVE procedure.

According to the discussion, companies are generally fine with the intention but think wordings can be reshaped. Therefore two options of change are proposed towards the issue:

**Option 1:**

|  |
| --- |
| The MAC entity shall not perform any uplink transmission except the Random Access Preamble and MSGA transmission when the *cg-SDT-TimeAlignmentTimer* is not running during the ongoing CG-SDT procedure as triggered in clause 5.27 and the *inactivePosSRS-TimeAlignmentTimer* is not running. The MAC entity shall not perform any uplink transmission except the Random Access Preamble and MSGA transmission when *inactivePosSRS-TimeAlignmentTimer* is not running during the procedure for SRS transmission in RRC\_INACTIVE as in clause 5.26 and the *cg-SDT-TimeAlignmentTimer* is not running. |

Option 1 is the legacy CR wording. Option 1 specifies the MAC behaviour when both positioning SRS timer and SDT timer are not running during the ongoing CG-SDT procedure, and specifies the MAC behaviour when both positioning SRS timer and SDT timer are not running during the procedure for SRS transmission in RRC\_INACTIVE.

**Option 2:**

|  |
| --- |
| The MAC entity shall not perform any uplink transmission except the Random Access Preamble and MSGA transmission when the *cg-SDT-TimeAlignmentTimer* is not running during the ongoing CG-SDT procedure as triggered in clause 5.27 and the *inactivePosSRS-TimeAlignmentTimer* is not running.  |

Option 2 specifies the MAC behaviour when both positioning SRS timer and SDT timer are not running during the ongoing CG-SDT procedure.

From the rapporteur point of view, option 1 is a complete description of UE behaviour by separating SDT procedure and SRS transmission in RRC\_INACTIVE procedure as below:

During the ongoing CG-SDT procedure as triggered in clause 5.27:

|  |  |  |
| --- | --- | --- |
|  | Pos timer going | pos timer not going |
| SDT timer going |  |  |
| SDT timer not going |  | The MAC entity shall not perform ... |

During the procedure for SRS transmission in RRC\_INACTIVE as in clause 5.26:

|  |  |  |
| --- | --- | --- |
|  | Pos timer going | pos timer not going |
| SDT timer going |  |  |
| SDT timer not going |  | The MAC entity shall not perform ... |

While option 2 is a simpler formulation but does not cover the case for ‘during the procedure for SRS transmission in RRC\_INACTIVE’. Companies are invited to provide views on the preferred option.

**Q2: Which option (option 1 or option 2) do you prefer on the change?**

|  |  |  |
| --- | --- | --- |
| Company |  Option1/option2/none | Comments |
| OPPO | Option 2 | We think that we should exclude the case of the TAT being expired from the ‘timer is not running’ situation, as the SRS resource or the CG-SDT configured grants will be either released or cleared, according to TS 38.321:1> when the *inactivePosSRS-TimeAlignmentTimer* expires:2> notify RRC to release Positioning SRS for RRC\_INACTIVE configuration(s). AND 1> when the *cg-SDT-TimeAlignmentTimer* expires:2> clear any configured uplink grants;2> if a PDCCH addressed to the MAC entity's C-RNTI after initial transmission for the CG-SDT with CCCH message has not been received:3> consider ongoing CG-SDT procedure as terminated;3> indicate the expiry of *cg-SDT-TimeAlignmentTimer* to the upper layer.in such cases, it seems unnecessary to let the UE still capable of performing UL transmission even if there exist another TAT timer is still running. On the other hand, we can also find that according to the TS 38.321, when the *cg-SDT-TimeAlignmentTimer* expires, ongoing CG-SDT procedure will be terminated. Since the CR given by ZTE explicitly specifies the status is ‘during the ongoing CG-SDT procedure’ which in turn implies that *cg-SDT-TimeAlignmentTimer* is not expired, so the timer expiration case could be excluded from the ‘timer not running’ meaning and as a result leads to a valid CR. |
| Huawei, HiSilicon | None | The condition is that when there is an on-going CG-SDT procedure; and there is an on-going SRS procedure. Although these two cases can run in parallel. But the current text is not wrong since the the text is only for CG-SDT procedure and SRS procedure. besides, the case when there are two procedures in parallel has already been considered in Question1 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

 **Q3: If your answer to Q2 is none, please provide your proposed change.**

|  |  |
| --- | --- |
| Company | Comments |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

# 5 Conclusion

**To be added**