**3GPP TSG-RAN WG2 Meeting #119bis-e R2-22xxxxx**

**Online, 10-17 October 2022**

Source: Huawei, HiSilicon

Title: [Offline-418][POS] Positioning MAC CR (Huawei)

Agenda Item: 6.11.1

Document for: Discussion and Decision

# Introduction

This document provides a summary of the following contributions submitted to AI 6.11 for MAC corrections.

## Contacts

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| Name | Company | Email |
| Xiang Pan | vivo | panxiang@vivo.com |

# Discussion

The following CR has been proposed to align with the agreement for CG-SDT on 2-step RACH.

[R2-2209427](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202210%20-%20RAN2_119bis-e,%20Online\Extracts\R2-2209427%20Correction%20to%20MAC%20spec%20for%20Positioning%20enhancement.docx) Correction to MAC spec for Positioning enhancement Huawei, HiSilicon CR Rel-17 38.321 17.2.0 1408 - F NR\_pos\_enh-Core

The following change has been proposed on the alignment

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| 1> when an Absolute Timing Advance Command is received in response to a MSGA transmission including C-RNTI MAC CE as specified in clause 5.1.4a:  2> apply the Timing Advance Command for PTAG;  2> if *inactivePosSRS-TimeAlignmentTimer* is configured and there is ongoing Positioning SRS Transmission in RRC\_INACTIVE as in clause 5.26:  3> start or restart the *inactivePosSRS-TimeAlignmentTimer* associated with the indicated TAG.  2> if CG-SDT procedure is ongoing:  3> start or restart the *cg-SDT-TimeAlignmentTimer* associated with PTAG.  2> else:  3> start or restart the *timeAlignmentTimer* associated with PTAG. |

Rapp’s comment:

* In the discussion for R2-2209429, a general consensus has been reached that we can align with the field description for CG-SDT that when SRS transmission in RRC\_INACTIVE is configured, *inactivePosSRS-TimerAlignmentTimer* is always configured
* During the online discussion for R2-2209427
  + Consensus has been made that we should align with CG-SDT’s agreement for 2-step RACH
  + One concern is that if in RRC spec, we mention that “*inactivePosSRS-TimerAlignmentTimer* is always configured”, then in the MAC spec, is it still necessary to add “if inactivePosSRS-TimeAlignmentTimer is configured” as a condition.

Based on the above, the rapp thinks that it is reasonable to not to have the condition “if inactivePosSRS-TimeAlignmentTimer is configured” if inactive SRS TAT is always configured. We propose the following TP based on the above.

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| The MAC entity shall:  1> when a Timing Advance Command MAC CE is received, and if an NTA (as defined in TS 38.211 [8]) has been maintained with the indicated TAG:  2> apply the Timing Advance Command for the indicated TAG;  2> ifthere is ongoing Positioning SRS Transmission in RRC\_INACTIVE as in clause 5.26:  3> start or restart the *inactivePosSRS-TimeAlignmentTimer* associated with the indicated TAG.  2> if CG-SDT procedure triggered as in clause 5.27 is ongoing:  3> start or restart the *cg-SDT-TimeAlignmentTimer* associated with the indicated TAG.  2> else:  3> start or restart the *timeAlignmentTimer* associated with the indicated TAG.  ===TEXT OMITTED===  1> when an Absolute Timing Advance Command is received in response to a MSGA transmission including C-RNTI MAC CE as specified in clause 5.1.4a:  2> apply the Timing Advance Command for PTAG;  2> if there is ongoing Positioning SRS Transmission in RRC\_INACTIVE as in clause 5.26:  3> start or restart the *inactivePosSRS-TimeAlignmentTimer* associated with the indicated TAG.  2> if CG-SDT procedure is ongoing:  3> start or restart the *cg-SDT-TimeAlignmentTimer* associated with PTAG.  2> else:  3> start or restart the *timeAlignmentTimer* associated with PTAG. |

***Question1, Do companies agree with the change above considering change in CR R2-2209427 and that inactivePosSRS-TimeAlignmenTimer is always configured?***

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| Company | Yes/No | Comments |
| vivo | Yes |  |

In the following CR, a change has been proposed for the description for PPW ID in the MAC spec

[R2-2209427](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202210%20-%20RAN2_119bis-e,%20Online\Extracts\R2-2209427%20Correction%20to%20MAC%20spec%20for%20Positioning%20enhancement.docx) Correction to MAC spec for Positioning enhancement Huawei, HiSilicon CR Rel-17 38.321 17.2.0 1408 - F NR\_pos\_enh-Core

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| 6.1.3.42 PPW Activation/Deactivation Command MAC CE  The PPW Activation/Deactivation Command MAC CE is identified by MAC subheader with eLCID as specified in Table 6.2.1-1b.  It has variable size defined as follows (Figure 6.1.3.42-1):  - numEntry: This field indicates the number of entries N-1 in the MAC CE. 00 indicates that N equals to 2; 01 indicates that N equals to 3 and so on. The length of the field is 2 bits;  - Serving Cell ID: This field indicates the identity of the Serving Cell for which the MAC CE applies. The length of the field is 5 bits;  - PPW ID: This field indicates the index of the PPW configured on active DL BWP of the Serving Cell identified by the above Serving Cell ID. Index 0 corresponds to the first entry within the list of the PPW configuration which is maintained in the UE and is ordered by the addition time in this BWP, index 1 corresponds to the second entry in the list and so on. The length of the field is 2 bits;  - A/D: This field indicates the activation or deactivation of the PPW. The field is set to 1 to indicate activation, otherwise it indicates deactivation. The length of the field is 1 bit;  - R: Reserved bit, set to 0.    **Figure 6.1.3.42-1: PPW Activation/Deactivation Command MAC CE** |

While in the RRC spec, the PPW configuration within a certain BWP is given as follows under *BWP-DownlinkDedicated*:

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| DL-PPW-PreConfigToAddModList-r17 ::= SEQUENCE (SIZE (1..maxNrofPPW-Config-r17)) OF DL-PPW-PreConfig-r17  DL-PPW-PreConfigToReleaseList-r17 ::= SEQUENCE (SIZE (1..maxNrofPPW-Config-r17)) OF DL-PPW-ID-r17 |

With the maximum number of PPW that can be configured under a BWP equaling to 4

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| maxNrofPPW-Config-r17 INTEGER ::= 4 -- Maximum number of Preconfigured PRS processing windows per DL BWP |

**Rapp’s Comment:**

* The maximum number of PPW that can be configured is 4, which can be fully covered by the PPW ID field within the MAC CE, with 2 bits
* It seems better to directly map the PPW ID in the MAC spec to the *PPW-ID* field in the RRC spec:
  + PPW ID with value 0 corresponds to the entry with *PPW-ID* set to 1 within the configured list of PPWs in TS 38.331; PPW ID with value 1 corresponds to the entry with *PPW-ID* set to 1 within the configured list of PPWs, and so on.

With the discussion above, we propose the following text proposal for the clarification of the PPW ID in the MAC spec:

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| 6.1.3.42 PPW Activation/Deactivation Command MAC CE  The PPW Activation/Deactivation Command MAC CE is identified by MAC subheader with eLCID as specified in Table 6.2.1-1b.  It has variable size defined as follows (Figure 6.1.3.42-1):  - numEntry: This field indicates the number of entries N-1 in the MAC CE. 00 indicates that N equals to 2; 01 indicates that N equals to 3 and so on. The length of the field is 2 bits;  - Serving Cell ID: This field indicates the identity of the Serving Cell for which the MAC CE applies. The length of the field is 5 bits;  - PPW ID: This field indicates the index of the PPW configured on active DL BWP of the Serving Cell identified by the above Serving Cell ID. Index 0 corresponds to the entry within the list of the PPW configuration(s) with the field *PPW-ID* in TS 38.331 [5] set to 1 in this BWP; index 1 corresponds to the entry in the list with the field *PPW-ID* in TS 38.331 [5] set to 2 in this BWP and so on. The length of the field is 2 bits;  - A/D: This field indicates the activation or deactivation of the PPW. The field is set to 1 to indicate activation, otherwise it indicates deactivation. The length of the field is 1 bit;  - R: Reserved bit, set to 0.    **Figure 6.1.3.42-1: PPW Activation/Deactivation Command MAC CE** |

***Quesiton2: Do companies agree with the change above for the clarification of PPW ID field in the MAC CE?***

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| Company | Yes/No | Comments |
| vivo | No | Note that the available value of DL-PPW-ID is 0 to 15, while the available value of PPW ID in MAC CE is 0 to 3. That is, the PPW ID in MAC CE is just the index of configured PPW in each BWP and does not equal DL-PPW-ID -1.  DL-PPW-ID-r17 ::= INTEGER (0..maxNrofPPW-ID-1-r17)  maxNrofPPW-ID-1-r17 INTEGER ::= 15  The index in MAC CE can be either ordered by the time of addition/configuration or by the value of DL-PPW-ID.  By the way, it seems the name in the MAC CE caused some misunderstanding, we are wondering whether the ‘PPW ID’ in MAC CE can be renamed to ‘PPW index’. |

# Conclusion

Based on the summary as above, we propose the following for discussion:

***TBD***