**3GPP TSG-RAN WG2 Meeting #121bis-e *R2-230xxxx***

**e-Meeting, 17th April – 26th April 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.305** | **CR** | **-** | **rev** | **-** | **Current version:** | **17.4.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:*** | Stage 2 procedure for deactivation of MG gap and PPW | | | | | | | | | |
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| ***Source to WG:*** | Intel Corporation | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_pos\_enh-Core | | | | |  | ***Date:*** | | | 2023-04-07 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)*  *Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Currently for Pre-configured Measurement Gap (Clause 7.7) and Pre-configured PRS processing window (Clause 7.8), the procedure for deactivation is missing. In RAN2#121, RAN2 discussed whether a separate deactivation procedure should be added or we add deactivation together with activation procedure.  Separate deactivation procedure is cleaner than combining the procedures. Therefore the CR is based on separate deactivation procedure. | | | | | | | | |
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| ***Summary of change:*** | | 1 in 7.7 Add deactivation procedure for Pre-configured Measurement Gap.  2 in 7.8 Add deactivation procedure for PRS processing window .  **Impact Analysis**  Impacted 5G architecture options: NR SA  Impacted functionality:  - Rel-17 positioning enhancements  Inter-operability issues:  - No issue has been identified. | | | | | | | | |
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| ***Consequences if not approved:*** | | Missing functional behaviour description in stage 2. | | | | | | | | |
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| ***Clauses affected:*** | | 7.7, 7.8 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revision of R2-2302744 | | | | | | | | |

START OF CHANGE

7.7 Procedures for Pre-configured Measurement Gap

7.7.1 General

The pre-configured measurement gap procedure is used by the network to provide measurement gap for NR DL-PRS measurements. The serving gNB may activate/deactivate the pre-configured measurement gap upon receiving the request from a UE or LMF.

7.7.2 Pre-configured Measurement Gap procedures

Figure 7.7.2-1 shows the procedure for the successful pre-configuration and activation of measurement gap.

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**Figure 7.7.2-1: Pre-configured measurement gap configuration and activation procedure**

0. LMF obtains the TRP information required for positioning services from the gNBs.

1. The LMF provides the PRS information of the neighbour TRPs to the serving gNB and requests the serving gNB to configure the UE with measurement pre-configurations via NRPPa MEASUREMENT PRECONFIGURATION REQUIRED message.

2. Based on the assistance information from the LMF and the UE capability, the serving gNB decides to pre-configure the UE with measurement gap and provides pre-configured measurement gap configuration(s) with associated ID(s) to the UE by sending RRC Reconfiguration message specified in TS 38.331 [14].

3. The UE sends RRC Reconfiguration complete message to the serving gNB to confirm the reception of pre-configured measurement gap configuration(s).

4. The serving gNB sends the confirmation message to the LMF to indicate the success of the pre-configuration via NRPPa MEASUREMENT PRECONFIGURATION CONFIRM message.

5a. If the UE requires measurement gaps for performing the requested location measurements, and the triggering condition for UL MAC CE as specified in TS 38.331 [14] is met, the UE sends UL MAC CE Positioning Measurement Gap Activation/Deactivation Request to the serving gNB and indicates the requested measurement gap configuration based on the ID configured in step 2.

5b. LMF may send the NRPPa MEASUREMENT ACTIVATION message to request the serving gNB to activate pre-configured measurement gap.

6. Based on the request from the UE in step 5a or the request from the LMF in step 5b, the serving gNB may send DL MAC CE Positioning Measurement Gap Activation/Deactivation Command containing an ID to activate the associated measurement gap.

Figure 7.7.2-2 shows the procedure for the successful deactivation of measurement gap.

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**Figure 7.7.2-2: Pre-configured measurement gap deactivation procedure**

0. A measurement gap has been activated as shown in Figure 7.7.2-1.

1a. If the UE requires to stop performing the requested location measurements, and the triggering condition for UL MAC CE as specified in TS 38.331 [14] is met, the UE sends UL MAC CE Positioning Measurement Gap Activation/Deactivation Request to the serving gNB to deactivate the activated measurement gap containing the ID associated with the measurement gap for positioning.

1b. LMF may send the NRPPa MEASUREMENT ACTIVATION message to request the serving gNB to deactivate pre-configured measurement gap.

2. Based on the request from the UE in step 1a or the request from the LMF in step 1b, the serving gNB may send DL MAC CE Positioning Measurement Gap Activation/Deactivation Command containing an ID to deactivate the associated measurement gap.

7.8 Procedures for Pre-configured PRS processing window

7.8.1 General

The pre-configured PRS processing window procedure is used by the network to provide PRS processing window for NR DL-PRS measurements to the UE without measurement gap. The serving gNB may activate/deactivate the pre-configured PRS processing window upon receiving the request from LMF.

7.8.2 Pre-configured PRS processing window procedures

Figure 7.8.2-1 shows the procedure for the successful pre-configuration and activation of PRS processing window.

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**Figure 7.8.2-1: Pre-configured PRS processing window configuration and activation procedure**

0. LMF obtains the TRP information required for positioning services from the gNBs.

1. The LMF provides the PRS information of the neighbour TRPs to the serving gNB and requests the serving gNB to configure the UE with measurement pre-configurations via NRPPa MEASUREMENT PRECONFIGURATION REQUIRED message.

2. Based on the assistance information from the LMF and the UE capability, the serving gNB decides to pre-configure the UE with PRS processing window and provides pre-configured PRS processing window configuration(s) with associated ID(s) to the UE by sending RRC Reconfiguration message specified in TS 38.331 [14].

3. The UE sends RRC Reconfiguration complete message to the serving gNB to confirm the reception of pre-configured PRS processing window configuration(s).

4. The serving gNB sends the confirmation message to the LMF to indicate the success of the pre-configuration via NRPPa MEASUREMENT PRECONFIGURATION CONFIRM message.

5. The LMF sends the NRPPa MEASUREMENT ACTIVATION message to request the serving gNB to activate the pre-configured PRS processing window.

6. Based on the request from the LMF in step 5, the serving gNB sends DL MAC CE PPW Activation/Deactivation Command containing ID(s) to activate the associated PRS processing window configuration(s).

Figure 7.8.2-2 shows the procedure for the successful deactivation of PRS processing window.

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**Figure 7.8.2-2: Pre-configured PRS processing window deactivation procedure**

0. The PRS processing window has been activated as shown in Figure 7.8.2-1.

1. The LMF sends the NRPPa MEASUREMENT ACTIVATION message to request the serving gNB to deactivate the pre-configured PRS processing window.

2. Based on the request from the LMF in step 1, the serving gNB sends DL MAC CE PPW Activation/Deactivation Command containing ID(s) to deactivate the associated PRS processing window configuration(s).

END OF CHANGE