**3GPP TSG-RAN WG2 Meeting #121-bis-e *draftR2-2304318***

**Online, 17th – 26th April, 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.305** | **CR** | xxxx | **rev** | - | **Current version:** | **17.4.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](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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X

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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:*** | Positioning restrictions for UE-to-network remote UE | | | | | | | | | |
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| ***Source to WG:*** | MediaTek Inc., CATT, Huawei, HiSilicon, Qualcomm Incorporated, Xiaomi, Intel Corporation, vivo | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI18 | | | | |  | ***Date:*** | | | 2023-04-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | A UE-to-Network Remote UE can support neither PPW, pre-configured measurement gap, nor uplink positioning methods with aperiodic or semi-persistent SRS (the PPW/pre-configured MG/SRS cannot be activated since there is no activation mechanism on sidelink). | | | | | | | | |
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| ***Summary of change:*** | | 1. A NOTE is added to section 7.7.1 indicating that the pre-configured measurement gap procedure is not supported for a UE-to-network Remote UE. 2. A NOTE is added to section 7.8.1 indicating that the pre-configured PPW procedure is not supported for a UE-to-network remote UE. 3. A NOTE is added to section 8.13.1 indicating that UL-TDOA positioning with aperiodic or semi-persistent SRS is not supported for a UE-to-Network Remote UE. 4. A NOTE is added to section 8.14.1 indicating that UL-AoA positioning with aperiodic or semi-persistent SRS is not supported for a UE-to-Network Remote UE. 5. A NOTE is added to section 8.10.1 indicating that multi-RTT positioning with aperiodic or semi-persistent SRS is not supported for a UE-to-Network Remote UE. | | | | | | | | |
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| ***Consequences if not approved:*** | | An LMF may attempt unsupported positioning operations when the UE is configured as a UE-to-Network Remote UE. | | | | | | | | |
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| ***Clauses affected:*** | | 7.7.1, 7.8.1, 8.10.1, 8.13.1, 8.14.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 38.331 CR XXXX  TS 37.355 CR XXXX  TS 38.306 CR XXXX | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*Start of change*

### 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.

NOTE: The pre-configured measurement gap procedure is not supported for a U2N Remote UE.

*Next change*

### 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.

NOTE: The pre-configured PRS processing window procedure is not supported for a U2N Remote UE.

*Next change*

### 8.10.1 General

In the Multi-RTT positioning method, the UE position is estimated based on measurements performed at both, UE and TRPs. The measurements performed at the UE and TRPs are UE/gNB Rx-Tx time difference measurements (and optionally DL-PRS-RSRP, DL-PRS-RSRPP, UL-SRS-RSRP, and/or UL-SRS-RSRPP) of DL-PRS and UL-SRS, which are used by an LMF to determine the RTTs.

The UE may require measurement gaps to perform the Multi-RTT measurements from NR TRPs. The UE may request measurement gaps from a gNB using the procedure described in clause 7.4.1.1. The UE may also request to activate pre-configured measurement gaps as described in clause 7.7.2.

NOTE: Multi-RTT positioning with aperiodic or semi-persistent SRS is not supported for a U2N Remote UE.

*Next change*

### 8.13.1 General

In the UL-TDOA positioning method, the UE position is estimated based on UL-RTOA (and optionally UL-SRS-RSRP and/or UL-SRS-RSRPP) measurements taken at different TRPs of uplink radio signals from UE, along with other configuration information.

The specifics of any UL-TDOA positioning methods or techniques used to estimate the UE's location from these measurements are beyond the scope of this specification.

In order to obtain uplink measurements, the TRPs need to know the characteristics of the SRS signal transmitted by the UE for the time period required to perform uplink measurement. These characteristics should be static over the periodic transmission of SRS during the uplink measurements. Hence, the LMF will indicate to the serving gNB the need to direct the UE to transmit SRS signals for uplink positioning. It is up to the serving gNB to make the final decision on resources to be assigned and to communicate this SRS configuration information back to the LMF so that LMF can forward the SRS configuration to the TRPs. The gNB may decide (e.g., in case no resources are available) to configure no resources for the UE and report the empty resource configuration to the LMF.

NOTE: UL-TDOA positioning with aperiodic or semi-persistent SRS is not supported for a U2N Remote UE.

*Next change*

### 8.14.1 General

In the UL-AoA positioning method, the UE position is estimated based on UL-AoA (and optionally UL-SRS-RSRP and/or UL-SRS-RSRPP) of uplink radio signals taken at different TRPs, along with other configuration information.

The specific of any UL-AoA positioning methods or techniques used to estimate the UE's location from these measurements are beyond the scope of this specification.

In order to obtain uplink measurements, the TRPs need to know the characteristics of the SRS signal transmitted by the UE for the time period required to calculate uplink measurement. These characteristics should be static over the periodic transmission of SRS during the uplink measurements. Hence, the LMF will indicate to the serving gNB the need to direct the UE to transmit SRS signals for uplink positioning. It is up to the gNB to make the final decision on resources to be assigned and to communicate this configuration information back to the LMF so that LMF can configure the TRPs. The gNB may decide (e.g., in case no resources are available) to configure no resources for the UE and fail the corresponding NRPPa procedure.

NOTE: UL-AoA positioning with aperiodic or semi-persistent SRS is not supported for a U2N Remote UE.

*End of change*