**3GPP T****SG-RAN WG2 Meeting #121 R2-2301995**

**Athens, Greece: 27th February – 3rd March, 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  | **38.331** | **CR** | **3850** | **rev** | **2** | **Current version:** | **17.3.0** |  |
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| *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 |  |

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| ***Title:***  | Clarification on use of feature upon TN NTN mobility during RRC\_INACTIVE |
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| ***Source to WG:*** | Qualcomm Inc., Intel Corporation, OPPO |
| ***Source to TSG:*** | R2 |
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| ***Work item code:*** | NR\_NTN\_solutions-Core |  | ***Date:*** | 2023-02-16 |
|  |  |  |  |  |
| ***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 canbe 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)* |
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| ***Reason for change:*** | Consider the scenario, the UE supports SDT in TN and but does not support it in NTN. The UE receives *sdt-Config* from TN cell and reselects to NTN cell broadcasting *sdt-ConfigCommon*. According to the current specification text, the UE meets the criteria to initiate SDT, which is wrong.

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| 5.3.13.1b Conditions for initiating SDTA UE in RRC\_INACTIVE initiates the resume procedure for SDT when all of the following conditions are fulfilled:1. the upper layers request resumption of RRC connection; and
2. *SIB1* includes *sdt-ConfigCommon*; and
3. *sdt-Config* is configured; and
4. all the pending data in UL is mapped to the radio bearers configured for SDT; and
5. lower layers indicate that conditions for initiating SDT as specified in TS 38.321 [3] are fulfilled.

NOTE: How the UE determines that all pending data in UL is mapped to radio bearers configured for SDT is left to UE implementation. |

Many other configurations configured by the TN may not be supported in NTN or not applicable in NTN. For example, a UE may support *extendedDRX-CycleInactive-r17* in TN but not in NTN. The UE when resuming in NTN should disregard *ran-ExtendedPagingCycle-r17* configuration. Therefore, a general clarification can be added that UE will just ignore the configurations (e.g., RRC configurations including SDT) that UE does not support in the *suspendConfig* when selecting in TN or NTN cell. |
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| ***Summary of change:*** | Following note is added for clarification upon acquisition of SIB1 in the new cell.*NOTE 3: UE in RRC\_INACTIVE that supports inactiveStateNTN-r17 disregards those RRC configurations in the suspendConfig which the UE cannot support in this cell upon cell reselection between TN cell and NTN cell.*Also, in the NOTE2 “*cell reselection between TN cell and NTN cell*” is corrected to “*cell reselection from TN cell to NTN cell*”.**Impact analysis:**Impacted functionality:RRC\_INACTIVE stateInter-operability:No inter-operability issue is identified. |
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| ***Consequences if not approved:*** | It remains unclear on how to handle the RRC configuration like *sdt-Config* if the UE does not support the configuration in the cell where it resumed. |
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| ***Clauses affected:*** | 5.2.2.3.1 |
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|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR’s revision history:*** |  |

START OF CHANGE

5.2.2.3 Acquisition of System Information

5.2.2.3.1 Acquisition of *MIB* and *SIB1*

The UE shall:

1> apply the specified BCCH configuration defined in 9.1.1.1;

1> if the UE is in RRC\_IDLE or in RRC\_INACTIVE; or

1> if the UE is in RRC\_CONNECTED while T311 is running:

2> acquire the *MIB,* which is scheduled as specified in TS 38.213 [13];

2> if the UE is unable to acquire the *MIB*;

3> perform the actions as specified in clause 5.2.2.5;

2> else:

3> perform the actions specified in clause 5.2.2.4.1.

1> if the UE is in RRC\_CONNECTED with an active BWP with common search space configured by *searchSpaceSIB1* and *pagingSearchSpace* and has received an indication about change of system information; or

1> if the UE is in RRC\_CONNECTED with an active BWP with common search space configured by *searchSpaceSIB1* and the UE has not stored a valid version of a SIB or posSIB, in accordance with clause 5.2.2.2.1, of one or several required SIB(s) or posSIB(s) in accordance with clause 5.2.2.1, and, UE has not acquired SIB1 in current modification period; or

1> if the UE is in RRC\_CONNECTED with an active BWP with common search space configured by *searchSpaceSIB1*, and, the UE has not stored a valid version of a SIB or posSIB, in accordance with clause 5.2.2.2.1, of one or several required SIB(s) or posSIB(s) in accordance with clause 5.2.2.1, and, *si-BroadcastStatus* for the required SIB(s) or *posSI-BroadcastStatus* for the required posSIB(s) is set to *notbroadcasting* in acquired *SIB1* in current modification period; or

1> if the UE is in RRC\_IDLE or in RRC\_INACTIVE; or

1> if the UE is in RRC\_CONNECTED while T311 is running:

2> if *ssb-SubcarrierOffset* indicates *SIB1* is transmitted in the cell (TS 38.213 [13]) and if *SIB1* acquisition is required for the UE:

3> acquire the *SIB1,* which is scheduled as specified in TS 38.213 [13];

3> if the UE is unable to acquire the *SIB1*:

4> perform the actions as specified in clause 5.2.2.5;

3> else:

4> upon acquiring *SIB1*, perform the actions specified in clause 5.2.2.4.2.

2> else if *SIB1* acquisition is required for the UE and *ssb-SubcarrierOffset* indicates that *SIB1* is not scheduled in the cell:

3> perform the actions as specified in clause 5.2.2.5.

NOTE 1: The UE in RRC\_CONNECTED is only required to acquire broadcasted *SIB1* and MBS broadcast if the UE can acquire it without disrupting unicast or MBS multicast data reception, i.e., the broadcast and unicast/MBS multicast beams are quasi co-located. The UE in RRC\_INACTIVE state while SDT procedure is ongoing, is only required to acquire broadcasted *SIB1* and *MIB* if the UE can acquire them without disrupting unicast data reception, i.e. the broadcast and unicast beams are quasi co-located.

NOTE 2: UE in RRC\_INACTIVE that does not support *inactiveStateNTN-r17* enters RRC\_IDLE upon cell reselection from TN cell to NTN cell, and initiates the NAS signalling connection recovery (see TS 24.501 [23]).

NOTE 3: UE in RRC\_INACTIVE that supports *inactiveStateNTN-r17* disregards those RRC configurations in the *suspendConfig* which the UE cannot support in this cell upon cell reselection between TN cell and NTN cell.

 *Apple suggested TP is as below:*

NOTE 3: For a UE in RRC\_ INACTIVE that supports *inactivativeStateNTN-r17* but does not support a given feature in RRC\_INACTIVE of NTN cell, the UE discards the RRC configuration of that function in *suspendConfig* when reselecting from TN cell to NTN cell.

END OF CHANGE