**3GPP TSG-RAN WG2 Meeting # 121bis-e *R2-2304351***

**Online, 17 April – 26 April, 2023**

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| *CR-Form-v12.2* | | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | | |
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|  | **38.321** | **CR** | 1580 | **rev** | **1** | **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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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Correction to CG-SDT LCH restriction | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SmallData\_INACTIVE-Core | | | | |  | ***Date:*** | | | 2023-04-17 |
|  |  | | | |  | |  | | |  |
| ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | During the SDT procedure, two sets of LCH restrictions are configured for UE, one in RRC\_CONNECTED and one in RRCRelease. Both LCH restriction configurations are used by UE during SDT procedure.   |  | | --- | | TS 38.300  Logical channel restrictions configured by the network while in RRC\_CONNECTED state and/or in *RRCRelease* message for radio bearers enabled for SDT, if any, are applied by the UE during SDT procedure. |   Therefore, there can be two different *configuredGrantType1Allowed* parameters configured for the UE during the CG-SDT procedure. In MAC specifications, it is not clear whether the *configuredGrantType1Allowed* is referring to the *configuredGrantType1Allowed-r17* in *CG-SDT-ConfigLCH-Restriction-r17*, or the legacy *configuredGrantType1Allowed* in *LogicalChannelConfig* configured in RRC\_CONNECTED mode.   |  | | --- | | TS 38.321 section 5.27.1  2> if, for each RB having data available for transmission, *configuredGrantType1Allowed*, if configured, is configured with value *true* for the corresponding logical channel; and  …… |   ======update during R2#121bis===  During R2#121bis, the following has been proposed after discussion  **Proposal 2: Update R2-2302988 in R2-230xxxx as follows**  2>          if, for each RB having data available for transmission, *configuredGrantType1Allowed*, if configured for CG-SDT, is configured with value *true* for the corresponding logical channel; and | | | | | | | | |
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| ***Summary of change:*** | | Clarify that the *configuredGrantType1Allowed* used in the section for small data trasnmission initiation should be the one that is configured for SDT  **Impact analysis**  **Impacted functionality:**  Small data transmission, LCH restriction  **Inter-operability analysis:**   * If the network is implemented according to the CR and the UE is not, the network and the UE may have a misaligned *configuredGrantType1Allowed* configuration during SDT. The UE may transmit MAC SDUs of this logical channel on a configurd grant Type1 that the network does not expect/allow. * If the UE is implemented according to the CR and the network is not, there is no inter-operability issue. | | | | | | | | |
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| ***Consequences if not approved:*** | | Not clear which *configuredGrantType1Allowed* configuration is used during the SDT procedrue, and the UE may transmit data on the configured grant that is not allowed by the network. | | | | | | | | |
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| ***Clauses affected:*** | | 5.27.1 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Ver0 submitted to RAN2#121-bis as R2-2302988  Ver1 submitted to RAN2#121bis as R2-2304351 | | | | | | | | |

### 5.27.1 General

The MAC entity may be configured by RRC with SDT and the SDT procedure may be initiated by RRC layer. The SDT procedure can be performed either by Random Access procedure with 2-step RA type or 4-step RA type (i.e., RA-SDT) or by configured grant Type 1 (i.e., CG-SDT).

RRC configures the following parameters for SDT procedure:

- *sdt-DataVolumeThreshold*: data volume threshold for the UE to determine whether to perform SDT procedure;

- *sdt-RSRP-Threshold*: RSRP threshold for UE to determine whether to perform SDT procedure;

- *cg-SDT-RSRP-ThresholdSSB*: an RSRP threshold configured for SSB selection for CG-SDT.

The MAC entity shall, if initiated by the upper layers for SDT procedure:

1> if the data volume of the pending UL data across all RBs configured for SDT is less than or equal to *sdt-DataVolumeThreshold*; and

NOTE 1: For SDT procedure, the MAC entity also considers the suspended RBs configured with SDT for data volume calculation. It is up to the UE's implementation how the UE calculates the data volume for the suspended RBs. Size of the CCCH message is not considered for data volume calculation

1> if the RSRP of the downlink pathloss reference is higher than *sdt-RSRP-Threshold*; or

1> if *sdt-RSRP-Threshold* is not configured:

2> if the Serving Cell is configured with supplementary uplink as specified in TS 38.331 [5]; and

2> if the RSRP of the downlink pathloss reference is less than *rsrp-ThresholdSSB-SUL*:

3> select the SUL carrier.

2> else:

3> select the NUL carrier.

2> if CG-SDT is configured on the selected UL carrier, and TA for CG-SDT is valid according to clause 5.27.2 in the first available CG occasion for initial CG-SDT transmission with CCCH message according to clause 5.8.2; and

2> if, for each RB having data available for transmission, *configuredGrantType1Allowed*, if configured for CG-SDT, is configured with value *true* for the corresponding logical channel; and

2> if at least one SSB configured for CG-SDT with SS-RSRP above *cg-SDT-RSRP-ThresholdSSB* is available:

3> indicate to the upper layers that the conditions for initiating SDT procedure are fulfilled;

3> perform CG-SDT procedure on the selected UL carrier according to clause 5.8.2.

2> else if a set of Random Access resources for RA-SDT is configured and can be selected according to clause 5.1.1b on the selected UL carrier:

3> if *cg-SDT-TimeAlignmentTimer* is running, consider *cg-SDT-TimeAlignmentTimer* as expired and perform the corresponding actions in clause 5.2;

3> indicate to the upper layers that the conditions for initiating SDT procedure are fulfilled.

2> else:

3> indicate to the upper layers that the conditions for initiating SDT procedure are not fulfilled.

1> else:

2> indicate to the upper layers that the conditions for initiating SDT procedure are not fulfilled.

If RA-SDT is selected above and after the Random Access procedure is successfully completed (see clause 5.1.6), the UE monitors PDCCH addressed to C-RNTI received in random access response until the RA-SDT procedure is terminated. If CG-SDT is selected above and after the initial transmission for CG-SDT is performed, the UE monitors PDCCH addressed to C-RNTI as stored in UE Inactive AS context as specified in TS 38.331 [5] and CS-RNTI until the CG-SDT procedure is terminated.

NOTE 2: When the UE determines if there is an SSB with SS-RSRP above *cg-SDT-RSRP-ThresholdSSB*, the UE uses the latest unfiltered L1-RSRP measurement.