**3GPP TSG-RAN4 Meeting #112 *R4-2413578***

**Maastricht, Netherlands, 19th – 23rd August, 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.101-4** | **CR** | **0586** | **rev** |  | **Current version:** | **18.4.0** |  |
|  |
| *For* ***[HE](http://www.3gpp.org/3G_Specs/CRs.htm%22%20%5Cl%20%22_blank)******[LP](http://www.3gpp.org/3G_Specs/CRs.htm%22%20%5Cl%20%22_blank)*** *on using this form: comprehensive instructions can be found at <http://www.3gpp.org/Change-Requests>.* |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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|  |
| ***Title:***  | (NR\_ATG-Perf) CR to TS 38.101-4 corrections of PDSCH and corresponding HARQ-ACK relationship for 30D4S6U TDD pattern for ATG |
|  |  |
| ***Source to WG:*** | CMCC |
| ***Source to TSG:*** | RAN4 |
|  |  |
| ***Work item code:*** | NR\_ATG-Perf |  | ***Date:*** | 2024-08-05 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***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 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | Currently, the size and the range of k1 for ATG 30D4S6U TDD pattern are beyond the IE DL-DataToUL-ACK-r18 |
|  |  |
| ***Summary of change:*** | Update the timing relationship between PDSCH and corresponding HARQ-ACK |
|  |  |
| ***Consequences if not approved:*** | The ATG spec will not be accurate |
|  |  |
| ***Clauses affected:*** | A.1.2, 5.1.1.12 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** | **X** |  |  Test specifications | TS 38.521-4  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Revised of R4-2411755 |

**<Start of change#1>**

## A.1.2 TDD UL-DL configurations for FR1

**<Unchanged parts skipped>**

Table A.1.2-2c: TDD UL-DL configuration for SCS 30 kHz for ATG

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Unit** | **UL-DL pattern** |
| **FR1.30-8** |
| TDD Slot Configuration pattern (Note 1) |  | 30D4S6U |
| Special Slot Configuration (Note 2) |  | 14G |
| *referenceSubcarrierSpacing* | kHz | 30 |
| *Pattern 1* | *dl-UL-TransmissionPeriodicity* | ms | 10 |
| *nrofDownlinkSlots* | slot | 20 |
| *nrofDownlinkSymbols* | symbol | 0 |
| *nrofUplinkSlot* | slot | 0 |
| *nrofUplinkSymbols* | symbol | 0 |
| *Pattern 2* | *dl-UL-TransmissionPeriodicity* | ms | 10 |
| *nrofDownlinkSlots* |  | 10 |
| *nrofDownlinkSymbols* |  | 0 |
| *nrofUplinkSlot* |  | 6 |
| *nrofUplinkSymbols* |  | 0 |
| The number of slots between PDSCH and corresponding HARQ-ACK information (Note 3) |  | 34 if mod(i,40) = 0, 1, 2, 3, 4, 528 if mod(i,40) = 6, 7, 8, 9, 10, 1122 if mod(i,40) = 12, 13, 14, 15, 16, 1716 if mod(i,40) = 18, 19, 20, 21, 22, 2310 if mod(i,40) = 24, 25, 26, 27, 28, 29 |
| Note 1: D denotes a slot with all DL symbols; S denotes a slot with a mix of DL, UL and guard symbols; U denotes a slot with all UL symbols. The field is for information.Note 2: D, G, U denote DL, guard and UL symbols, respectively. The field is for information.Note 3: i is the slot index of all slots in every 20ms, i = {0,…,39} |

**<End of change#1>**

**<Start of change#2>**

5.1.1.12 Applicability of requirements for ATG

The performance requirements in Table 5.1.1.12-1 shall apply for ATG UEs [which support optional feature *TBD*].

Other performance requirements mandatory for UE supporting NR operation defined in Section 5 but not included in table 5.1.1.12-1 should not be considered applicable to ATG UEs.

**Table 5.1.1.12-1: Requirements applicability for ATG UEs**

|  |  |  |  |
| --- | --- | --- | --- |
| **UE capability** | **Test type** | **Test list** | **Applicability notes** |
| ATG UE with 2RX | FR1 FDD | PDSCH | All tests in Clause 5.2.2.1.22 |  |
| PDCCH | Test number 1, 3 and 5 in Table 5.3.2.1.1Test number 3 in Table 5.3.2.1.2 |  |
| PBCH | Clause 5.4.2.1 |  |
| SDR | Clause 5.5.1 |  |
| FR1 TDD | PDSCH | Tests 1-1, 1-2, 1-3 in Clause 5.2.2.2.23 | Only if ATG UE does not supports optional features *k1-RangeExtensionATG-r18,* or *maxHARQ-ProcessNumberATG-r18* with 32 DL processes.  |
| Tests 1-4, 1-5, 1-6 in Clause 5.2.2.2.23 | Only if ATG UE supports the optional features *k1-RangeExtensionATG-r18,* and *maxHARQ-ProcessNumberATG-r18* with 32 DL processes. | If UE supports *outOfOrderOperationDL-r16*. |
| [TBD] in Clause 5.2.2.2.23 | If UE does not support *outOfOrderOperationDL-r16*. |
| PDCCH | All test cases in Table 5.3.2.2.1All test cases in Table 5.3.2.2.2 |  |
| PBCH | Clause 5.4.2.2  |  |
|  | SDR | Clause 5.5.1 |  |
| ATG UE with 4RX | FR1 FDD | PDSCH | All tests in Clause 5.2.3.1.21 |  |
| PDCCH | Test number 1, 3 and 5 in Table 5.3.3.1.1Test number 3 in Table 5.3.3.1.2 |  |
| PBCH | Clause 5.4.3.1  |  |
| SDR | Clause 5.5.1 |  |
| FR1 TDD | PDSCH | Tests 1-1, 1-2, 1-3 in Clause 5.2.3.2.22 | Only if ATG UE does not supports optional features *k1-RangeExtensionATG-r18,* or *maxHARQ-ProcessNumberATG-r18* with 32 DL processes.  |
| Tests 1-4, 1-5, 1-6 in Clause 5.2.3.2.22 | Only if ATG UE supports the optional features *k1-RangeExtensionATG-r18,* or *maxHARQ-ProcessNumberATG-r18* with 32 DL processes. | If UE supports *outOfOrderOperationDL-r16*. |
| [TBD] in Clause 5.2.3.2.22 | If UE does not support *outOfOrderOperationDL-r16*. |
| PDCCH | All test cases in Table 5.3.3.2.1All test cases in Table 5.3.3.2.2 |  |
| PBCH | Clause 5.4.3.2 |  |
|  | SDR | Clause 5.5.1 |  |

**<End of change#2>**