**3GPP TSG-RAN4 Meeting #111 *R4-2410240***

**Fukuoka, Japan, 20th – 24th May，2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | 38.133 | **CR** | 4338 | **rev** | **1** | **Current version:** | 18.5.0 |  |
|  | | | | | | | | |
| *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 |  | Core Network |  |

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| ***Title:*** | (NR\_ATG-Core) On *deriveSSB-IndexFromCell* tolerance | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Apple | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ATG-Core | | | | |  | ***Date:*** | | | 2024-04-29 |
|  |  | | | |  | |  | | |  |
| ***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 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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Clarification on *deriveSSB-IndexFromCell* tolerance and *deriveSSB-IndexFromCell/Inter-r17* torlerance is needed due to the fact that this IE is not useful in large majority of the ATG scenarios. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Clarify that ATG UE does not expect the *deriveSSB-IndexFromCell* and *deriveSSB-IndexFromCell/Inter-r17* to be set as true when RTD from UE between serving and neighbour cell is large than X. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The use of *deriveSSB-IndexFromCell* and *deriveSSB-IndexFromCell/Inter-r17* is unclear and UE performance is vague in case these IE is configured for wrong scenarios. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.7D; 7.9D | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## 7.7 *deriveSSB-IndexFromCell* tolerance

### 7.7.1 Minimum requirements

When *deriveSSB-IndexFromCell* is enabled, the UE assumes frame boundary alignment (including half frame, subframe and slot boundary alignment) across cells on the same frequency carrier is within a tolerance not worse than

- min (2 SSB symbols, 1 PDSCH symbol) for sub-carrier spacings of SSB and PDSCH up-to 240 kHz,

- min (3 SSB symbols, NPDSCH PDSCH symbols) for sub-carrier spacing of 480 kHz and 960kHz of either SSB or PDSCH where NPDSCH is defined in Table 7.7.1-1

and the SFNs of all cells on the same frequency carrier are the same.

Table 7.7.1-1 NPDSCH when deriveSSB-IndexFromCell is enabled

|  |  |  |
| --- | --- | --- |
| SSB SCS (KHz) | PDSCH SCS (KHz) | NPDSCH |
| 120 | 480 | 3 |
| 120 | 960 | 6 |
| 480 | 120 | 1 |
| 480 | 480 | 3 |
| 480 | 960 | 6 |
| 960 | 120 | 1 |
| 960 | 480 | 2 |
| 960 | 960 | 3 |

When *deriveSSB-IndexFromCell* is not enabled, the UE assumes frame boundary alignment (including half frame, subframe and slot boundary alignment) across cells on the same frequency carrier is within a tolerance not worse than 6 SSB symbols for sub-carrier spacing of 960kHz and the SFNs of all cells on the same frequency carrier are the same.

## 7.7A deriveSSB-IndexFromCell tolerance for RedCap

### 7.7A.1 Minimum requirements

When *deriveSSB-IndexFromCell* is enabled, the RedCap UE assumes frame boundary alignment (including half frame, subframe and slot boundary alignment) across cells on the same frequency carrier is within a tolerance not worse than min(2 SSB symbols, 1 PDSCH symbol) and the SFNs of all cells on the same frequency carrier are the same.

## 7.7D DeriveSSB-IndexFromCell tolerance for ATG

### 7.7D.1 Minimum requirements

When *deriveSSB-IndexFromCell* is enabled, the ATG UE assumes frame boundary alignment (including half frame, subframe and slot boundary alignment) across cells on the same frequency carrier is within a tolerance not worse than min(2 SSB symbols, 1 PDSCH symbol) and the SFNs of all cells on the same frequency carrier are the same.

UE does not expect the deriveSSB-IndexFromCell to be set as true when frame boundary across detectable cells on the same frequency carrier is larger than the minimum tolerance requirement.

## 7.8 Void

## 7.9 *deriveSSB-IndexFromCellInter-r17* tolerance

### 7.9.1 Minimum requirements

When *deriveSSB-IndexFromCellInter-r17* is enabled, the UE assumes frame boundary alignment (including half frame, subframe and slot boundary alignment) across cells on the target carrier and reference cell is within a tolerance not worse than min (2 SSB symbols of target carrier, 1 PDSCH symbol of the reference cell) and the SFNs of all cells on the target carrier and reference cell are the same. The reference cell is the serving cell which is used for SSB indexes derivation as indicated via *deriveSSB-IndexFromCellInter-r17*.

## 7.9D *DeriveSSB-IndexFromCellInter-r17* tolerance for ATG

### 7.9D.1 Minimum requirements

When *deriveSSB-IndexFromCellInter-r17* is enabled, the ATG UE assumes frame boundary alignment (including half frame, subframe and slot boundary alignment) across cells on the target carrier and reference cell is within a tolerance not worse than min (2 SSB symbols of target carrier, 1 PDSCH symbol of the reference cell) and the SFNs of all cells on the target carrier and reference cell are the same. The reference cell is the serving cell which is used for SSB indexes derivation as indicated via *deriveSSB-IndexFromCellInter-r17*.

UE does not expect the deriveSSB-IndexFromCellInter to be set as true when frame boundary across detectable cells on the target carrier and reference cell is larger than the minimum tolerance requirement.