**3GPP TSG-RAN WG3 #115-e R3-222976**

**21 Feb – 3 Mar 2022**

**Online**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.401** | **CR** | **0165** | **rev** | **9** | **Current version:** | **16.8.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network | **x** | Core Network |  |

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| ***Title:*** | BLCR to 38.401\_Addition of SON features enhancement | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE, Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ENDC\_SON\_MDT\_enh | | | | |  | ***Date:*** | | | 2022-3-04 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | Add the support of SON enhancement for NR | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | **Enhancement of support of RACH optimisation**  **Add support of PCI optimisation**  **Add support of Coverage and Capacity Optimisation**  **TPs:**  **RAN3 #110-e:**   * Include the agreed TP in R3-207212   **RAN3# 113-e:**   * Include the agreed TP in R3-213218 | | | | | | | | |
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| ***Consequences if not approved:*** | | NR SON features enhancement are not supported | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.5, 7.X (new), 7.Y (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 38.300 CR  TS 36.300 CR  TS 38.473 CR 0710  TS 38.423 CR 0517  TS 38.413 CR 0530  TS 36.413 CR 1800 | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev 1: update cover sheet  Rev 2: update current version from 16.3.0 to 16.4.0.  Rev 3: update current version from 16.4.0 to 16.5.0.  Rev 4: update current version from 16.5.0 to 16.6.0.  Rev 5: include agreements from RAN3#113 found in R3-213218  Rev 6: update current version from 16.6.0 to 16.7.0  Rev 7: update current version from 16.7.0 to 16.8.0  Rev 8: update current version from 16.8.0 to 16.8.0  Rev 9: R3-222976  Merge TP in R3- 222752 | | | | | | | | |

**--------------------------------------------------Start of the change---------------------------------------------------**

## 7.5 RACH Optimisation Function

The RACH Optimization Function in non-split gNB case is specified in TS 38.300 [2].

In case of split gNB architecture, RACH configuration conflict detection and resolution function is located at the gNB-DU. To perform RACH optimisation at gNB-DU, gNB-CU sends the RACH report reported by the UE to gNB-DU via F1AP signalling. The gNB-DU signals the PRACH configuration per-cell to gNB-CU. The gNB-CU may forward a limited set of neighbour cell’s PRACH configurations received from neighbour gNBs and other gNB-DUs to the gNB-DU to resolve the configuration conflict.

**--------------------------------------------------Next change---------------------------------------------------**

## 7.x PCI Optimisation Function

The PCI Optimization Function in non-split gNB case is specified in TS 38.300 [2].

In split gNB architecture, the OAM configures a PCI for each NR cell to the gNB-DU.

For centralized PCI assignment in split gNB architecture, the gNB-CU detects PCI conflict of NR cells and reports the NR cells suffering PCI confilict to OAM directly. The OAM is in charge of reassigning a new PCI for the NR cell subject to PCI conflict.

For distributed PCI assignment in split gNB architecture, the OAM assigns a list of PCIs for each NR cell and sends the configured PCI list to the gNB-CU. If the gNB-CU detects PCI conflict, the gNB-CU may select a new PCI value from the preconfigured PCI list for the NR cell and send it to the gNB-DU by either F1 Setup procedure or gNB-CU configuration update procedure.

**--------------------------------------------------Next change---------------------------------------------------**

## 7.Y Support for CCO

### 7.Y.1 General

The NR Capacity and Coverage Optimization (CCO) Function in non-split gNB case is specified in TS 38.300 [2]. The objective of this function is to detect and mitigate coverage and cell edge interference issues.

### 7.Y.2 OAM requirements

Each gNB-DU may be configured with alternative coverage configurations by OAM. The alternative coverage configurations contain relevant radio parameters and may also include a range for how each parameter is allowed to be adjusted.

### 7.Y.3 Dynamic coverage configuration changes

In case of split gNB architecture, CCO detection function is located at the gNB-CU. The gNB-CU signals to the gNB-DU the CCO issue and the affected cells and beams. The gNB-DU resolves the CCO issue concerning own served cell by local action within the OAM configured limits. The gNB-DU may also take into account information received for other cells when adopting the CCO configuration. The gNB-DU informs the gNB-CU of the new coverage states adopted.

**--------------------------------------------------End of the change-----------------------------------------------------**