**3GPP TSG-SA5 Meeting #133e *S5-206052rev1***

**e-meeting 12th – 21st October 2020**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.313** | **CR** | **007** | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | Correct Distributed PCI optimization | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | SON\_5G | | | | |  | ***Date:*** | | | 2020-10-03 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The Use Case and Management Services descriptions for D-SON PCI optimization do not confirm to RAN3 agreements.  The PCI reconfiguration is controlled by the CU, as evident from TS 38.473 clause 9.2.1.10, Information Element *NR PCI* | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Correct Use Case and Management Services descriptions for D-SON PCI optimization | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misalignment with this specification and Stage 2 and Stage 3 in TS 28.541. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.1.1.4, 6.4.1.4.1, 6.4.1.4.2, 7.1.3.3.1, 8.2.31, 8.2.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | | **X** |  | O&M Specifications | | | | CR 0385, CR 0386 | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | S5-205141 | | | | | | | | |

**First change**

#### 6.1.1.4 PCI configuration and re-configuration

**REQ-DPCI-CONFIG-FUN-1** producer of provisioning MnS should have a capability allowing an authorized consumer to set or update the list(s) of PCI value(s) for NR cell(s).

**REQ-DPCI-CONFIG-FUN-2** producer of provisioning MnS should have a capability allowing an authorized consumer to enable or disable the PCI configuration function.

**REQ-DPCI-CONFIG-FUN-3** producer of provisioning MnS should have a capability to notify the authorized consumer with the PCI value(s) being selected for NR cell(s).

**REQ-DPCI-CONFIG-FUN-4** producer of provisioning MnS should have a capability to notify the authorized consumer about the detection or resolution of PCI collision or PCI confusion problems for NR cells.

**REQ-DPCI-CONFIG-FUN-5** producer of provisioning MnS should have a capability allowing an authorized consumer to configure or re-configure the PCI list at the PCI configuration function.

**Next change**

##### 6.4.1.4.1 Initial PCI configuration

| Use case stage | Evolution/Specification | <<Uses>> Related use |
| --- | --- | --- |
| **Goal** | To automatically configure the initial PCI for a NR cell, from a list of PCIs. |  |
| **Actors and Roles** | D-SON management function to support initial PCI list configuration. |  |
| **Telecom resources** | * gNB; * The producer of provisioning MnS |  |
| **Assumptions** | N/A |  |
| **Pre-conditions** | * The NR cells is not yet in operation. * No PCI list has been assigned to the NR cell. |  |
| **Begins when** | The D-SON management function decides to configure the PCI list for a NR cell. |  |
| **Step 1 (M)** | The D-SON management function requests the producer of provisioning MnS to configure the PCI list for a cell to the PCI configuration function. |  |
| **Step 2 (M)** | The D-SON management function requests the producer of provisioning MnS to enable the PCI configuration function at NR cell(s). |  |
| **Step 3 (M)** | When the cell is about to start operating, the PCI configuration function selects a PCI value from the list of PCI values and provides that to the cell. |  |
| **Step 4 (M)** | The producer of provisioning MnS notifies the consumer with the PCI value being assigned for the NR cell. |  |
| **Ends when** | All the steps identified above are successfully completed. |  |
| **Exceptions** | One of the steps identified above fails. |  |
| **Post-conditions** | The PCI value of a NR cell has been configured. |  |
| **Traceability** | **REQ-DPCI-CONFIG-FUN-1, REQ-DPCI-CONFIG-FUN-2, REQ-DPCI-CONFIG-FUN-3, REQ-DPCI-CONFIG-FUN-5** |  |

##### 6.4.1.4.2 PCI re-configuration

| Use case stage | Evolution/Specification | <<Uses>> Related use |
| --- | --- | --- |
| **Goal** | To automatically re-configure the PCI of an NR cell, due to PCI collision or PCI confusion problems. |  |
| **Actors and Roles** | D-SON management function to support PCI re-configuration. |  |
| **Telecom resources** | * gNB; * The producer of provisioning MnS * The producer of fault supervision MnS |  |
| **Assumptions** | N/A |  |
| **Pre-conditions** | * A NR cell has been assigned a PCI value. * The PCI configuration function is in operation and enabled. |  |
| **Begins when** | The PCI configuration function has detected the PCI problem of a PCI collision or a PCI confusion for an NR cell. |  |
|  |  |  |
| **Step 1 (M)** | The D-SON PCI configuration function re-configures the PCI of that cell using one of the PCI values in the PCI list |  |
| **Step 2 (M)** | The PCI configuration function selects PCI value(s) from the PCI list. |  |
| **Step 3 (M)** | The producer of provisioning MnS notifies the consumer about the new PCI value of the NR cell. |  |
|  |  |  |
| **Ends when** | All the steps identified above are successfully completed. |  |
| **Exceptions** | One of the steps identified above fails. |  |
| **Post-conditions** | The PCI collision or PCI confusion have been resolved. |  |
| **Traceability** | **REQ-DPCI-CONFIG-FUN-3, REQ-DPCI-CONFIG-FUN-4, REQ-DPCI-CONFIG-FUN-5** |  |

**Next change**

#### 7.1.3.3 MnS Component Type C definition

##### 7.1.3.3.1 Notification information

The table below lists the notifications related to D-SON PCI configuration.

|  |  |  |
| --- | --- | --- |
| Notifications | Description | Note |
| PCI change notification | When the PCI configuration function changes the PCI of a cell, this change is notified using a notifyMOIAttributeValueChanges notification |  |

**Next change**

### 8.2.3 PCI configuration

#### 8.2.3.1 Initial PCI configuration

Figure 8.2.3.1-1 depicts a procedure that describes how D-SON management function can manage the PCI configuration (D-SON) function to assign the initial PCI values to an NR cell.



Figure 8.2.3.1-1: Initial PCI configuration procedure

1. The D-SON management function consumes the MnS of NF provisioning with *modifyMOIAttributes* operation to configure the PCI list for an NR cell.

1.a The producer of provisioning MnS sets the PCI list at the PCI configuration (D-SON) function. (NOTE)

2. The D-SON management function consumes the MnS of NF provisioning with *modifyMOIAttributes* operation to enable the PCI configuration function for NR cell(s) if it is not enabled.

2.a The MnS of provisioning enables the PCI configuration (D-SON) function (NOTE).

3. The PCI configuration (D-SON) function selects PCI value(s) from the PCI list.

4. The PCI configuration (D-SON) function reports the PCI value(s) being assigned to the MnS of NF provisioning.

5. The MnS of NF provisioning sends a notification *notifyMOIAttributeValueChange* to D-SON management function to indicate the PCI value(s) being assigned to NR cell(s).

NOTE: The interface between MnS of NF provisioning and PCI configuration (D-SON) function is not subject to standardization.

#### 8.2.3.2 PCI re-configuration

Figure 8.2.3.2-1 depicts a procedure that describes how the PCI configuration function, when detecting a PCI collision or confusion, re-configures the PCI of the cell based on the PCI list, and notifies the D-SON management consumer..

**D-SON management consumer**

**Producer of provisioning MnS**

3. *notifyMOIAttributeChange*   
 to indicate new PCI value

**PCI configuration function**

2. Indicate that attribute is changed.

1. Detect and correct PCI collision or confusion

Figure 8.2.3.2-1: PCI re-configuration procedure

1. The PCI configuration (D-SON) function detects and corrects the PCI collision or PCI confusion problem for a NR cell (NOTE).

2. The PCI configuration (D-SON) function indicates the attribute change to the Producer of provisioning MnS..

3. The Producer of provisioning MnS sends a notification *notifyMOIAttributeValueChange* to the D-SON management function to indicate the new PCI value being assigned to NR cell.

NOTE: The interface between Producer of provisioning MnS and PCI configuration (D-SON) function is not subject to standardization.

**End of changes**