**3GPP TSG-RAN WG3 Meeting #111-e R3-210441**

**E-meeting, 25 Jan – 5 Feb 2021**

**Title:** (TP for SON BL CR for TS 38.300):Further clarification on distributed PCI selection

**Source:** Huawei

**Agenda item:** 10.2.1.1

**Document for:** Other

# 1. Introduction

For distributed PCI selection function, it was agreed that the OAM configures a PCI list for each NR cell to the gNBs or to the gNB-CU in case of split architecture. And the gNBs or gNB-CU will select one from the PCI list as the PCI value for a certain NR cell. This has been captured in the BLCRs for TS 38.300 and TS 38.401.

However, this does not mean that the gNB may randomly select any of PCI in the list as the PCI value for a NR cell. At least PCIs that have been already used by neighbour cells shall be not selected. Random selection from the list may increase the possibility of occurring PCI conflict in real network.

In LTE, we use the following yellow sentences in stage 2 to restrict the configured PCI list.

*22.3.5 Framework for PCI Selection*

*The eNB shall base the selection of its PCI either on a centralized or distributed PCI assignment algorithm:*

*[Centralized PCI assignment] The OAM signals a specific PCI value. The eNB shall select this value as its PCI.*

*[Distributed PCI assignment] The OAM signals a list of PCI values. The eNB may restrict this list by removing PCI-s that are:*

*a) reported by UEs;*

*b) reported over the X2 interface by neighbouring eNBs; and/or*

*c) acquired through other implementation dependent methods, e.g. heard over the air using a downlink receiver.*

*The eNB shall select a PCI value randomly from the remaining list of PCIs.*

We think that such restriction is also necessary and beneficial for distributed PCI selection in NR to reduce the PCI conflict probability when selecting a new PCI from the PCI list for a NR cell.

**Proposal: It is proposed to agree on the stag 2 TP in Annex to enable the gNB restrict the PCI list when selecting a new PCI from the PCI list for a NR cell in case of distributed PCI selection.**

# Annex – TP for SON BLCR for TS 38.300

### 15.5.y Support for PCI Optimisation

The PCI Optimization Function in split gNB case is specified in TS 38.401 [4].

#### 15.5.y.1 Centralized PCI Assignment

For centralized PCI assignment in gNB, the OAM assigns a single PCI for each NR cell in the gNB, and the gNB selects this value as the PCI of the NR cell.

#### 15.5.y.2 Distributed PCI Assignment

For distributed PCI assignment in gNB, the OAM assigns a list of PCIs for each NR cell in the gNB, and the gNB selects a PCI value from the list of PCIs. The gNB may restrict this list by removing some PCIs that are reporting by UEs, reported over the Xn interface by neighboring gNBs, and/or acquired through other implementation dependent methods, e.g. heard over the air using a downlink receiver.