3GPP TSG-RAN WG3 Meeting #112-e R3-212663

E-meeting, 17 – 27 May, 2021

**Agenda item: 10.2.1.7**

**Source: Nokia (moderator)**

**Title: CB: # 1207\_SONMDT\_RACH - Summary of email discussion**

**Document for: Approval**

# 1 Introduction

**CB: # 1207\_SONMDT\_RACH**

**- Topics to discuss:**

**- How gNB-DU resolves the RACH conflict**

**- Neighbor PRACH Configuration in F1AP**

**- Trigger from gNB-DU to gNB-CU for retrieval of a UE RACH Report?**

**- RACH failure rate calculation and transfer in F1AP and XnAP**

**- DU indicates to the CU the occurrence of RACH for cases when the RACH procedure is not known to the gNB-CU?**

**- gNB-DU/en-gNB to report upon every event of “MSG1 without consecutive MSG3”?**

**- Any other topic based on contributions submitted**

**- Start with summary of offline, proceed to TPs if there are agreements**

(Nok - moderator)

Summary of offline disc [R3-212663](Inbox\R3-212663.zip)

The discussion is structured in two phases, one before the online sessions and one after. The deadline for the first phase is Thursday 16:00 UTC.

# 2 For the Chairman’s Notes

[To be completed]

# 3 Background

For RACH Optimization Enhancements we have the following agreements:

Support of inter-en-gNB RACH coordination in Rel-17 is beneficial, feasibility to be further evaluated in light of the NG-RAN solution to be defined.

Include neighbor PRACH Configuration in GNB-CU CONFIGURATION UPDATE, GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE messages

FFS whether to include neighbor PRACH Configuration in F1 SETUP RESPONSE message

DU resolves PRACH configuration conflicts locally

Send a high number of Neighbour PRACH Configurations from CU to DU. Maximum value is FFS. The request from DU to CU is FFS.

# 4 Discussion

## 4.1 PRACH conflict detection and resolution

It is agreed that the "DU resolves PRACH configuration conflicts locally". So far, the agreeable outcome goes in the direction of CU assistance based on sending of "a high number of Neighbour PRACH Configurations from CU to DU", listed as option a) below. Other options that can be deduced from the submitted papers are:

* **Option a:** Large number of PRACH configurations from CU without further CU assistance to DU (*DU resolves PRACH configuration conflicts locally*)
* **Option b:** Large number of PRACH configurations from CU with CU assistance (RACH failure rate in neighbour cells) to DU (*DU resolves PRACH configuration conflicts locally*)
* **Option c:** Small number of PRACH configurations from CU to DU (*DU resolves PRACH configuration conflicts after requesting further CU assistance through more PRACH configurations*)
* **Option d:** Large number of PRACH configurations from CU to DU *(DU resolves PRACH configuration conflicts after requesting further CU assistance through more PRACH configurations*)

In your view, which of the options above would be sufficient to detect and resolve PRACH configuration conflicts? Are any options in the submitted proposals missing in your view?

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| --- | --- |
| Company | Comment |
| Huawei | First of all, just to clarify that the small number amd the large number refer to the maximum number of neighbour cells PRACH configurations sending from the CU to the DU. Since a large number was agreed at last meeting, we prefer to set the maximum value to 512 which was proved by the F1 SETP from DU to CU that there is no any messge size issue.  Regarding the assistance information, we have two options, the RACH failure rate and the cell ID that is suffering from PRACH configuration conflict.  We think that the RACH failure rate doesn't help the CU much more than the cell ID. The DU may indicate the cell ID directly if the failure rate in that cell is beyond a threshold.  We can accept to send the cell ID as the assistance information as a compromise by using the gNB DU configuration update procedure. |
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## 4.2 Trigger of retrieval of UE RACH report

Options under discussion at RAN3#111-e were the following:

1. For RACH events that are visible to the DU but not to the CU, DU triggers the CU to retrieve UE RACH Reports from a UE.

2. No trigger from DU is needed - CU is triggered by the UE to retrieve UE RACH Reports.

No agreement was reached - can further discussion on these mechanisms be left to later release, which means no additional trigger for UE RACH report is provided to the CU?

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| --- | --- |
| Company | Comment |
| Huawei | We see some benefits to have the trigger from DU to CU. But ok to follow the majority. |
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## 4.3 Inclusion of PRACH Configuration in F1 SETUP RESPONSE

This proposal was discussed at RAN3#111-e without agreement, and further proposed at this meeting in 1864 with additional clarifications. Please provide your further views:

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| --- | --- |
| Company | Comment |
| Huawei | If the CU can send the neighbour cells’ PRACH configurations in F1 SETUP response, it will enable the DU to do the first round detection on the PRCH configuration conflict.  There are many implementation specific ways to let the CU know where is the new deployed DU and which are its neighours roughly. |
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# 5 Conclusion, Recommendations [if needed]

If needed