3GPP TSG-RAN WG3 Meeting #113-e R3-214257

E-meeting, 16 – 26 August, 2021

**Agenda item: 9.3.4.1**

**Source: Nokia (moderator)**

**Title: CB: # 106\_MultiPLMNClarification - Summary of email discussion**

**Document for: Approval**

# 1 Introduction

This paper provides summary of discussions at RAN#113-e on:

**CB: # 106\_MultiPLMNClarification**

**- Clarify the scenarios and the issues**

(Nok - moderator)

The discussion was triggered by discussion paper 3269 and associated F1AP CRs (3270, 3271) proposing correction from Rel-15 onwards..

# 2 For the Chairman’s Notes

[To be completed]

# 3 Discussion

## 3.1 Clarify the scenario intended by the specification

The discussion paper 3269 describes example scenarios where a PLMN or SNPN may be unavailable at the gNB-CU. This can happen e.g. in case of introduction or removal of an operator from RAN sharing, or temporary outage of a core network. The list of available PLMNs and SNPN IDs are signalled from the CU to the DU in the *Available PLMN List* IE and the *Available SNPN ID List* IE. F1AP describes action to be taken by the gNB-DU in this case, i.e. only available PLMN(s) or SNPN(s) are broadcast.

For the purpose of making the PLMN again visible to UEs as fast as possible when the PLMN becomes available at the gNB-CU, the discussion paper 3269 further assumes that the gNB-CU informs the gNB-DU when any unavailable PLMN or SNPN again becomes available. This is supported by triggering the gNB-CU Configuration Update procedure, conveying the mentioned IEs (*Available PLMN List* IE, *Available SNPN ID List* IE) including the PLMN/SNPN ID that has newly become available. Upon reception of this information, the gNB-DU will again broadcast the PLMN/SNPN ID.

**Q1: Do you agree that the above description corresponds to the scenario intended by the specification?**

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| Company | Comment |
| Nokia | Yes |
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## 3.2 Clarify the issues

### 3.2.1 Issue on gNB-DU side

As per TS 38.473, the *Served PLMNs* IE (contained in the *Served Cell Information* IE) is described as conveying "Broadcast PLMNs in SIB 1 associated to the NR Cell Identity in the *NR CGI* IE". Based on the current specification, following the scenario described in first paragraph of section 3.1, the gNB-DU might trigger a gNB-DU Configuration Update procedure including in the *Served PLMNs* IE only PLMNs/SNPN IDs that are actually broadcast.

**Q2: For the mentioned scenario, in your view, will the gNB-DU will trigger a gNB-DU Configuration Update procedure conveying a *Served PLMNs* IE including only PLMNs/SNPN IDs that are actually broadcast?**

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| Company | Comment |
| Nokia | Yes, such risk exists. We believe that a gNB-DU ideally should send *Served PLMNs* IE including all **configured** PLMNs, and not only PLMNs/SNPN IDs that are actually broadcast, to the gNB-CU. However we believe that the semantics text of current specification creates a risk that a gNB-DU implementation only sends actually broadcast PLMNs/SNPN IDs in the *Served PLMNs* IE. This would create a risk for misoperation (see section 3.2.2 below). |
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### 3.2.2 Issue on gNB-CU side

We would also like to clarify the behaviour on gNB-CU upon reception of *Served PLMNs* IE containing only PLMNs/SNPN IDs that are actually broadcast. We believe that the current specification creates a risk for two different interpretations:

* Interpretation 1: the unavailable PLMN/SNPN ID has been deconfigured by the OAM of the gNB-DU. In this case, the gNB-CU **shall not inform** the gNB-DU when the unavailable PLMN/SNPN ID again becomes available.
* Interpretation 2: the unavailable PLMN/SNPN ID is still configured in the gNB-DU, but not broadcast. In this case, the gNB-CU **shall inform** the gNB-DU when the unavailable PLMN/SNPN ID again becomes available.

**Q3: Which interpretation is correct in your view?**

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| Company | Comment |
| Nokia | We believe that the current specification is unclear in the sense that no IE permits the gNB-CU to know, in this situation, which PLMNs/SNPN IDs are configured in the gNB-DU. In our view, the gNB-CU shall only inform the gNB-DU about PLMNs/SNPN IDs that are configured in the gNB-DU. We believe that the intention of the *Served PLMNs* IE is to inform the gNB-CU about PLMNS/SNPN IDs configured in the gNB-DU, hence our proposal to correct the semantics description of this IE.Such correction would prevent triggering of signalling from gNB-DU side described in section 3.2.1, and hence any risk of misoperation.Such correction would also allow the gNB-CU side to safely assume interpretation 1. |
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# 4 Conclusion, Recommendations [if needed]

If needed

# 5 References

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| [R3-213269](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_113-e%5CDocs%5CR3-213269.zip) | F1AP correction for multi-PLMN deployments (Nokia, Nokia Shanghai Bell, Orange, CATT) | Discussion |
| [R3-213270](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_113-e%5CDocs%5CR3-213270.zip) | Correction for multi-PLMN deployments (Nokia, Nokia Shanghai Bell, Orange, CATT) | CR0723r2, TS 38.473 v15.14.0, Rel-15, Cat. F\*\*\* |
| [R3-213271](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_113-e%5CDocs%5CR3-213271.zip) | Correction for multi-PLMN deployments (Nokia, Nokia Shanghai Bell, Orange, CATT) | CR0724r2, TS 38.473 v16.6.0, Rel-16, Cat. A\*\*\* |