3GPP TSG-RAN WG3 #112-e R3-212672

Online, 17 – 28 May 2021

Agenda Item: 8.1

Source: Nokia (moderator), Nokia Shanghai Bell

Title: Summary of Offline Discussion on SON enhancements for NR-U (CB #1216)

Document for: Approval

# Introduction

**CB: # 1216\_SONMDT\_NR-U**

**- Topics to discuss**

 **- to discuss the topic of MLB for NR-U and to find solutions that lead to knowledge of resource availability for an NR-U channel**

 **- to discuss the topic of cross RAN node coordination for NR-U and to find solutions that lead to an optimized NR-U configuration for more efficient channel utilization**

 **- Take into account of the case PCI collisions or confusion may happen when multiple PLMNs are deployed in unlicensed spectrum**

 **- Exchange type of the cell resource and the Number of Active UEs with LBT mode information is needed to be taken into account for Load Balancing Enhancements and Inter-System Load Balancing**

 **- measured RSSI and channel occupancy in the unlicensed spectrum can be included in the RLF report**

 **- MRO for HOF due to LBT failure in NR-U system should be considered**

 **- Load of unlicensed spectrum is signalled over F1 and Xn interface.**

 **- unlicensed spectrum load information is reported per cell (not per beam)**

 **- unlicensed spectrum load information is reported per channel of 20MHz**

**- Start with summary of offline**

(Nok - moderator)

Summary of offline disc R3-212672

# For the Chairman’s Notes

Propose the following:

R3-20xxxa, R3-20xxxc merged

R3-20xxxc rev [in xxxg] – agreed

R3-20xxxd rev [in xxxh] – agreed

R3-20xxxe rev [in xxxi] – agreed

R3-20xxxf rev [in xxxj] – endorsed

Propose to capture the following:

**Agreement text…**

**Agreement text…**

**WA: carefully crafted text…**

Issue 1: no consensus

**Issue 2: issue is acknowledged; need to further check the impact on xxx. May be possible to address with a pure st2 change. To be continued…**

# Discussion

Companies contributing to the meeting listed several areas where SON support may be needed for NR-U:

1. Load information from NR-U towards licensed NR [1,3];
2. New failure events related to e.g. LBT or channel occupancy in the failure report [2,4];
3. Resource coordination between licensed NR and NR-U and optimised resource utilisation in NR-U [3]

**Question 1: Which of the problems indicated in the contributed papers should be addressed first in SON for NR-U?**

|  |  |
| --- | --- |
| Company | Comment |
| Nokia | Surely, (1) and (2) above are classic SON topics and should be addressed first. (3) may be discussed later. |
| Huawei | 1. And (2). (3) may need further clarification.
 |
| ZTE | Issue (1) could be discussed with high priority |
| Lenovo and Motorola Mobility | (2) |
| Samsung | (1) and (2). FFS for (3) |
| CMCC | (1) and (2). FFS for (3) |

**Question 2: Is there any other area, not listed above, that RAN3 shall address when discussing SON for NR-U?**

|  |  |
| --- | --- |
| Company | Comment |
| Nokia | Likely not. |
| Huawei  | Not for the time being. Contribution driven. |
| ZTE | No |
| Lenovo and Motorola Mobility | Not yet. |
| Samsung | Maybe MDT needs to be enhanced for NR-U. |
| CMCC | MDT may be one area but it is contribution based. |

Furthermore, in [1], possible cooperation with RAN2 is mentioned. Similarly, [2] mentions enhancements to the failure reporting.

**Question 3: Is there any topic that RAN3 could ask RAN2 to help with at this moment?**

|  |  |
| --- | --- |
| Company | Comment |
| Nokia | It is likely an LS will be needed in future, but at this moment there is nothing to ask yet. |
| Huawei  | No need to send LS at this moment. |
| ZTE | LS is not needed at this meeting, maybe we can send the LS if some basic agreements or WA are made in RAN3. |
| Lenovo and Motorola Mobility | LS can be sent later when more progress is achieved in RAN3. |
| CMCC | Not needed at the moment, nothing to LS |

# Conclusion, Recommendations [if needed]

If needed

# References

R3-211731, Load information enhancements for NR-U (Nokia, Nokia Shanghai Bell)

R3-212167, SON enhancements for NR-U (Lenovo, Motorola Mobility)

R3-212267, Proposals on MLB for NR-U (Ericsson)

R3-212581, Optimization for NR-U (ZTE)