

Access / Backhaul link power control in Rel-19 NCR Enhancement

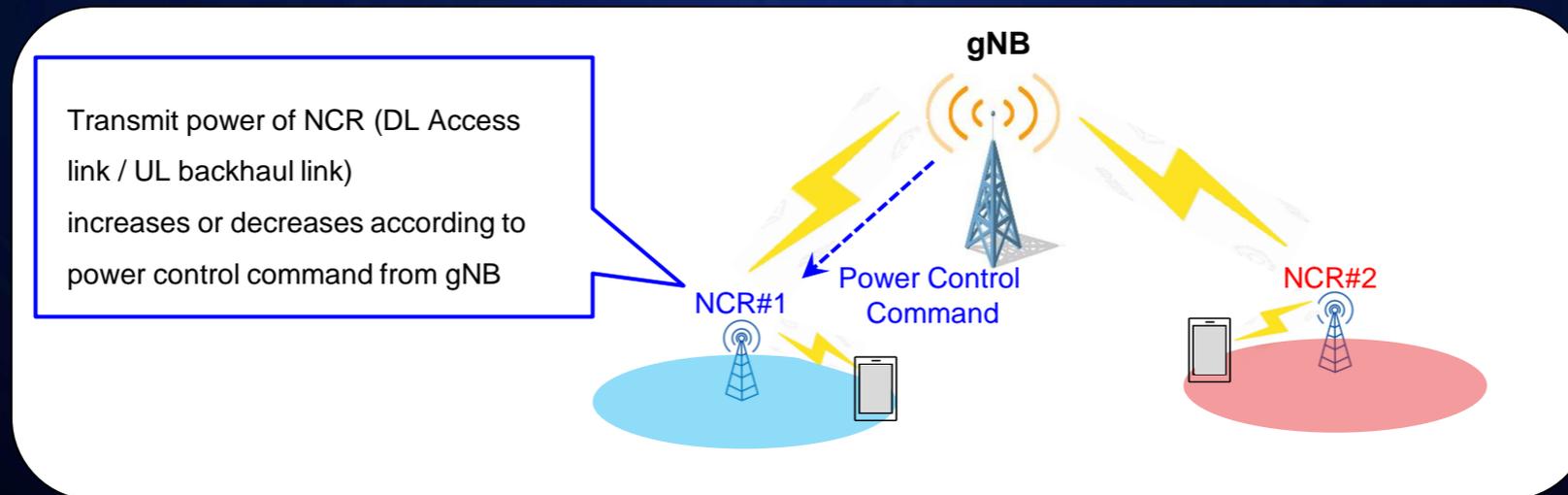


Introduction

- **Network-controlled repeater (NCR) was proposed in Rel-18 to increase NR coverage.**
 - NCR is an advanced repeater from RF repeater.
 - NCR includes mobile termination (NCR-MT), and gNB controls NCR through NCR-MT.
- **However, it was decided to exclude power control of NCR in Rel-18.**
 - Considering the scenario of deploying and operating multiple NCRs, power control is an essential technique
- **So, we discuss the power control of NCR to mitigate interference and optimize transmission power in Rel-19 NCR enhancement**

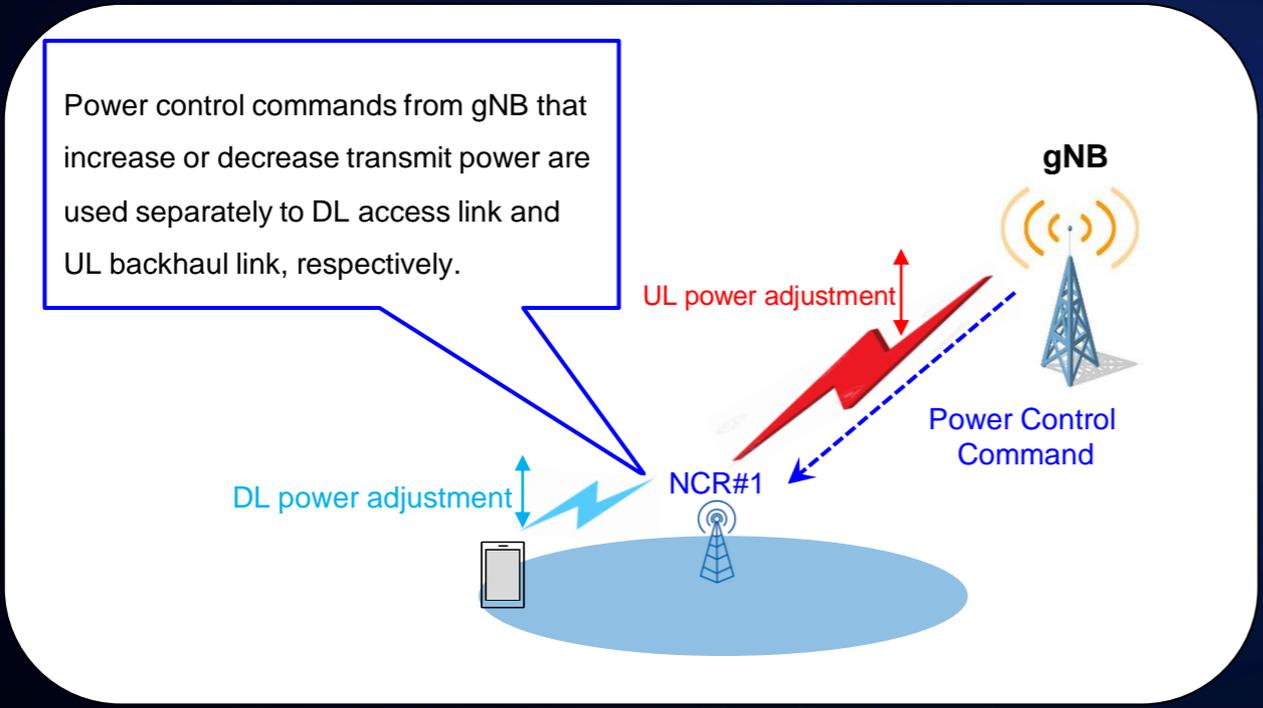
Discussion

- **Observation 1:** To operate multiple NCRs simultaneously, NCR should be optimized through NCR power control
 - Through power control command, transmission power of NCR's DL access link and UL backhaul link are adjusted.
 - Mitigate interference among UEs in adjacent areas by adjusting the transmission power of DL access link.
 - Mitigate interference among NCRs and UEs by adjusting the transmission power of UL backhaul link.
 - Power control can save the NCR energy consumption by optimizing NCR transmission power based on the received signal power from NCR to gNB



Discussion

- **Observation 2:** Power control considering the channel condition both DL access link and UL backhaul link of NCR is necessary.



- Through power control command, transmission power of NCR's DL access link and UL backhaul link are adjusted.
- The level of power amplification required by DL access link and UL backhaul link can be different.
- Power control command that can separately adjust the power of DL access link and UL backhaul link is required.

Conclusion

- **Based on the previous observations, we strongly suggest as following;**
- **Proposal:**
 - **Interference mitigation among NCRs and transmission power optimization using power control in Rel-19 NCR enhancement.**
 - **In addition, power control command can separately adjust the power of DL access link and UL backhaul link.**

Thank You.

