

Agenda Item:

Source: Ericsson

Title: Functional Split of DL Inner Loop Power Control Function

Document for:

1. INTRODUCTION

This contribution discusses the functional split of the radio network function *DL Inner Loop Power Control* (used in the FDD mode and applicable for dedicated channels only). We identify the information to be transferred on each interface for this function. We propose this information to be included in [1] and [2].

2. FUNCTIONAL SPLIT

The DL Inner Loop Power Control function is located in the UE and the Node B and is controlled by the DL Outer Loop Power Control function via the quality target. The DL Inner Loop Power Control receives quality measurements and quality target as input and sets the TPC sent on the UL.

In the Node B, the TPC bits are used in order to decide if we shall increase or decrease the DL power. Furthermore, the SRNC limits the range of the DL power so that not too much power is spent on one connection. The SRNC should also have the ability to set an initial DL power and a DL power offset in order to make it possible to have different power levels in different Node Bs.

2.1 Information sent on Uu

The DL Inner Loop Power Control function gets information about the Target Quality (from the function DL Outer Loop Power Control) and the current DL Quality (from measurements in the UE). For that reason there is no need to transport extra input parameters over the Uu interface for the DL Inner Loop Power Control. The function sets the TPC and transmits it back to the Node B (this is already included in the DPCCH, i.e. physical layer of Uu).

2.2 Parameters sent on Iub and Iur

Assuming that power control rate, step size and On/Off criteria are controlled with O&M, the Iub need to support a transfer of the following information: DL power offset, DL power range, DL initial power. We propose these parameters to be added in the corresponding procedures on the Iub and Iur interfaces.

3. PROPOSED CHANGES

We propose:

Iub interface (proposal of changes in [1]):

- The current procedures 9.2.2.1.7 Radio Link Setup Request and 9.2.2.2.1 Radio Link Addition in [1] contains a bullet named “Power control information”. We propose this to be replaced by “Power control information (DL Power offset, DL Power Range and DL Initial Power)”.
- The current procedure 9.2.2.2.2 Radio Link Reconfiguration in [1] does currently not contain any power control information. We propose the following to be added under RL RECONFIGURATION REQUEST: “Power control information (DL Power offset and DL Power Range)”

Iur interface (proposal of changes in [2]):

- The current procedures 9.2.2.1 Radio Link Addition in [2] does currently not contain any power control information. We propose this to be replaced by “Power control information (DL Power offset, DL Power Range and DL Initial Power)”.
- The current procedure 9.2.2.3 Radio Link Reconfiguration in [2] does currently not contain any power control information. We propose the following to be added to the text describing the message contents: “Power control information (DL Power offset, DL Power Range and DL initial Power)”

4. REFERENCES

- [1] ZZ.13, Description of Iub Interface, ver. 0.1.0
[2] ZZ.12, Description of Iur Interface, ver. 0.1.0