

Source: Nokia

Monitoring of UTRA FDD Cells

Introduction

In the meeting No. 2 Tdoc R1-99044 presented the background for giving a more precise definition for the “relative signal strength” to be measured by the UE from the other UTRA FDD cells on the same frequency and then reported for UTRAN.

In the mentioned paper it was proposed to define the relative signal strength more accurately as the E_c/I_0^1 of the Primary CCPCH (Common Control Physical Channel) channel, thus not to introduce new items to be measured but to define the existing physical layer items more accurately.

As discussed over the reflector, the benefit of this is to allow relative signal strength measurements without need for decoding anything, which is as asked over the reflector important not only for intra but also for inter-frequency handover. As there having a full interleaving period of samples for full decoding might not be feasible at all (for measurement purposes during active state).

Text proposal for S1.31, section 6.1.3.2

Monitoring of FDD cells on the same frequency

<Editor's note : no requirement has been defined yet, in terms e.g. of number of cells to be able to monitor in a given time, precision of individual measurements... Text included in this section is more of a descriptive nature and provide the list of measurements to be reported by the physical layer to higher layer. Details on the measurements should be available in section 6.1.1.3.3>

During the measurement process of cells on the same frequencies, the UE shall find the necessary synchronisation to the cells to measure using the primary and secondary synchronisation channels and also the knowledge of the possible scrambling codes in use by the neighbouring cells.

As the UE does measurement, at least the following information is obtained:

¹ E_c/I_0 is being defined as chip energy per total received channel power density

- The UE shall measure from the cells on the same frequency, belonging to the handover monitoring set, the E_c/I_0 of the Primary CCPCH ~~Relative signal strength of the measured cell~~
- Relative timing between the cells, measured for example from the phase difference between the scrambling code, depending on the timing difference between the cells.

6.1.3.3 Monitoring of cells on different frequencies (FDD, TDD and GSM)

During the measurement process of FDD cells on a different frequency, the UE shall measure the following information:

- The UE shall measure from the FDD cells on another frequency, belonging to the handover monitoring set, the E_c/I_0 of the Primary CCPCH.
- Relative timing between the scrambling codes of the serving and measured cell as derived from the scrambling codes used on the Primary CCPCH.

¶Conclusions

It is proposed that the item to be measured by UE from FDD cells, relative signal strength, is defined in S1.31 more precisely as given in the text proposals in the given sections. This item will have an impact on the physical layer implementation and thus a more precise definition is considered to be important. Thus as such no new items are introduced.

References: Tdoc R1-99044 “Monitoring of UTRA FDD Cells on the Same Frequency”
RAN WG1 Meeting No. 2, February 1999.