Source: LG Electronics

Title: TFCI power control in split mode

Document for: Discussion

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1. Introduction

In last Stockholm meeting, we proposed and discussed TFCI power control in split mode [1]. In split mode, TFCI2 (TFCI for DSCH) is not transmitted from every cell in the active set when UE is in the soft handover region. Thus the reliability of TFCI cannot be guaranteed. To solve this problem, it has been proposed that the power control improvement for DSCH should be applied to the TFCI with different power offsets Like DSCH power offset, TFCI power offset is adjusted by UE location (i.e. in the soft handover region or in the non-soft handover region), and it is also determined by whether the cell transmitting DSCH is primary or non-primary. Therefore, three TFCI power offsets such as PO1, primary_PO1 and non-primary_PO1 are required. In this document, the proposed method is compared and investigated with Release 99 method.

2. The proposed TFCI power control methods

TFCI bits are used to indicate the DSCH message. The power of TFCI in split mode may be determined by two methods

	Non Handover region	Handover region (primary)	Handover region (non primary)
Release 99 Method	Non-primary_PO1	Non-primary_PO1	Non-primary_PO1
Proposed method	PO1	Primary_PO1	Non-primary_PO1

where release 99 method is operated according to Release 99.

✍✍ Power

In release 99 method 1, all UEs that receive DSCH or have a desire to receive DSCH should have high power for TFCI. The power offset Non-primary_PO1 should be large enough to cover the whole cell area. Therefore, the excessive power consumption is unnecessarily high. On the contrary, the proposed method assign different power offsets (Primary_PO1 or Non-primary_PO1) according to the UE location. (i.e. in the soft handover region or in the non-soft handover region)

✍✍ Complexity

In the proposed method, TFCI power control is associated with DSCH power control. Thus, the proposed method makes decision upon whether the cell transmitting DSCH is primary or non-primary. In this case, the added parameters are only Primary_PO1. The increased complexity by the power offset adjustment according to the cell status is nominal.

3. Conclusion

We propose that TFCI power control follow the DSCH power control in soft handover. Therefore, it is proper to treat TFCI power control in split mode as R4 issue and to be included in [2] by change request.

4. Reference

[1] TSG R1-00-1429, Power control of TFCI field for DSCH in soft handover, LG Electronics.

[2] TR 25.841, DSCH power control improvement in soft handover.