3GPP TSG RAN #13   *RP-010652*
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TO: RAN #13
Title: Discussion Paper for Proposed WI "Enhancement of SSDT"
Document for: discussion

1. Introduction

In Release 99 specifications, SSDT (Site Selection Diversity Transmit power control) was introduced in soft handover mode in order to increase downlink traffic capacity. Although the capacity gain is large for high bit-rate services, the gain is small for low bit-rate services such as speech services. In order to improve the performance of SSDT, Enhanced SSDT has been discussed in RAN WG1.

2. Problems in SSDT

In SSDT specified in Release 99, UE selects a cell from its active set cells as a "primary" cell, and the primary cell transmits both DPDCH and DPCCH. The other cells, which are called "non-primary" cells, suspend transmission of DPDCH and transmit DPCCH. The capacity gain of SSDT is somewhat reduced with the transmission of DPCCH from non-primary cells, because the DPCCH increases interference to other channels. Although the impact is small in high bit-rate channels, the impact is not small in low bit-rate channels. This is because the ratio of DPCCH bits in DPCH is large in low bit-rate channels. For example, the channel bit-rate for speech services is around 60kbps, and the ratio of DPCCH bits is ranging from 0.15 to 0.3. In such a case, the traffic capacity gain of SSDT might be lost.

3. Status

In RAN WG1, the problem of SSDT was explained with a simulation result, and Enhanced SSDT has been discussed as solutions to the problem. In the discussions, simulation results showed that significant capacity gain is achieved with Enhanced SSDT. Also, it was shown that Node-B that supports Enhanced SSDT works with Node-B that supports current SSDT in the same active set.

4. Proposals

NEC proposes that a new work item is opened so that the gain of SSDT is not reduced in low bit-rate channels for speech services. And it is proposed that this work item is handled by RAN WG1.