3GPP TSG-RAN #13 **Tdoc RP-01-0646**

Beijing, China, September 18-21, 2001

Agenda item: **9.9.2**

Source: Rapporteur

Title: Status Report of Study Item “USTS”

Document for: Information and Decision

The status of each involved WG is summarized below:

RAN WG1

In the Rel5 Ad Hoc meeting in Espoo, two documents on the UL scrambling code reference point in the USTS mode and on the Rx-Tx timing relation at UE in the USTS mode were approved. These have been included in the TR25.854 v021. Regarding the performance of USTS two documents were presented from SK Telecom and Ericsson. It was concluded that system level aspects need to be addressed for the feature by considering number of users able to share the same scrambling code, cell isolation, and orthogonality due to channel profile, and no other major concerns remain. In the RAN WG1 #21 in Turin, the TR was approved as v030. Two lengthy documents were discussed on the system level performance gain of USTS theoretically and by simulations in various single/multiple cell environments, which take into account uplink orthogonality factor, imperfect synchronism, soft handover, other-to-own cell interference ratio, code limitation, penetration ratio, receiver antenna diversity, noise rise, and outage probability. One concern was raised about Eb/No adjustment when SF is 128 instead of 64 for voice.

RAN WG2

In RAN WG2 #22, the documents about impact and handover for USTS were presented. And WG2 has been waiting for input from WG1 to see if any more work is needed in WG2 ever since.

RAN WG3

In RAN WG3 #22 meeting, TR 25.839v0.3.0 (R3-012266) was approved. In this version of TR, the impacts of USTS on WG3 and procedures for USTS (i.e. Mode Change, Soft handover, etc) were included. In the last several meetings, USTS feasibility study has been done sufficiently in point of WG3. As a result, it was concluded that USTS is feasible given a low mobility environment. WG1 was informed about the conclusion in the status report sent from WG3#21.

There has been no concern from WG2 so far and WG1 reported that USTS is feasible in RAN #11. Feasibility from WG3 point of view was questioned and in RAN #12 WG3 reported their conclusion that USTS is feasible given a low mobility. Then, the system level performance was questioned and during the last two WG1 meetings, four contributions were discussed on this issue, which shows many performance figures in various environments. The only remaining concern is about Eb/No adjustment when SF=128 is used instead of 64 for voice. Regarding the TR25.854 (WG1) and TR25.839 (WG3), they have been revised and approved three times in each WG. Judging from the progress on the TRs and the remaining simulations to be done with Eb/No adjustment, we can meet the Rel5 schedule if a positive conclusion is made on the feasibility of USTS in the next WG1 meeting in New York. Therefore, we propose to create a Rel 5 WI “USTS” with a condition that WG1 resolve the only concern raised about Eb/No adjustment with different SF in the next WG1 meeting.