TSG-RAN Working Group 1 meeting #18
Boston, MA, USA
January 15-18, 2001

TSGR1#18(01)0064

Source: **Nokia**

Title: RTD measurement in UTRAN

Agenda Item: **Release'4 LCS**

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1. INTRODUCTION

TS 25.305 'Stage 2 Functional Specification of UE Positioning in UTRAN', version 3.4.0, defines the UE positioning methods. These include OTDOA-IPDL. Text below is partial copy of the description in TS 25.305.

"In order to support the OTDOA method, the relative time difference (RTD) of the downlink transmissions must also be known by the calculation function (PCF). If the UTRAN transmitters are unsynchronised, the RTD will change over time as the individual clocks drift. Thus, measurements of RTD may need to be made regularly and the calculation function updated appropriately. One convenient method is to make use of an LMU at a fixed location. This unit measures the observed time differences of all the local transmitters and reports these to the PCF. These measures may then be converted (translated) into the actual (absolute) relative time difference for each of the transmitters by making use of the known location of the LMU and the transmitters."

2. PROPOSAL

Currently TS 25.215 (or 25.225) does not define RTD measurement for UTRAN. RTD measurement in UTRAN LMU is similar to the UE measurement SFN-SFN observed time difference type 2, which is defined in TS 25.215. In order to support RTD measurement, it is proposed to include SFN-SFN observed time difference type 2 also for UTRAN.

5.2.x   SFN-SFN observed time difference

Definition	The relative timing difference between cell j and cell i, defined as $T_{CPICHRxj} - T_{CPICHRxi}$, where: $T_{CPICHRxj}$ is the time when the LMU receives one Primary CPICH slot from cell j $T_{CPICHRxi}$ is the time when the LMU receives the Primary CPICH slot from cell i that is closest in time to the Primary CPICH slot received from cell j.

3. Way forward

Since TSG RAN WG2 is the leading WG on the positioning issues and would be impacted by this it is proposed that an LS is provided for them together with WG4 which has the responsibility of the performance requirements as well as the measurement range. The LS should check if the other WGs are in the agreement with this measurement being needed to finalise what is being described TS 25.302 for the OTDOA method. Proposed draft LS is attaced to this contribution.

Source: TSG RAN WG1

To: TSG-RAN WG2, TSG-RAN WG4

Cc: TSG-RAN WG3,

Title: RTD measurement in UTRAN

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TSG-RAN WG1 would like to inform other RAN TSGs of the proposed new UTRAN measurement for the support of OTDOA measurements in UTRAN Rel'4 for UE positioning. The proposal made in Tdoc R1-01-00xx is to insert the STD measurement in UTRAN side to find out the SFN-SFN type 2 infromation in the UTRAN side as well. This would allow UTRAN to find out relative time difference of different transmitters for accurate positioning performance with OTDOA method, inline with the stage 2 description given in TS 25.305.

The proposed measurement definition for UTRAN measurements in 25.215 and 25.225 is given below:

5.2.x   SFN-SFN observed time difference

Definition	The relative timing difference between cell j and cell i, defined as $T_{CPICHRxj} - T_{CPICHRxi}$, where: $T_{CPICHRxj}$ is the time when the LMU receives one Primary CPICH slot from cell j $T_{CPICHRxi}$ is the time when the LMU receives the Primary CPICH slot from cell i that is closest in time to the Primary CPICH slot received from cell j.

TSG RAN WG1 would like to get the feedback if other WGs how the same understanding of this measurement being needed to complete the OTDOA method measurements as given in stage 2 description in TS 25.305.

TSG RAN WG1 can provide CRs on this issue for the next TSG RAN#11 for inclusions in UTRAN Rel'4.