TSG-RAN Working Group1 meeting #6
Espoo, Finland 13-16, July 1999

TSGR1#6(99)947

3GPP TSG RAN WG3
Helsinki 5th to 9th July 1999

TSGR3#5(99)801

_____

Title: **Liaison Statement on Timing Advance for TDD**
From: **RAN WG3**
To: **RAN WG1, WG2**

_____

1. Introduction

At TSG RAN WG3 meeting #5, July 99, document R3-99604 "Timing Advance for TDD" [1] has been presented with reference to a recent TSG RAN document on the same issue [2]. Document [1] includes a short description of the necessity of - and the conditions for - Timing Advance for TDD, and of a proposed technical solution based on "Uplink Burst Timing" measurements performed by the NodeB L1, and on downlink Timing Advance commands sent from UTRAN RRC to the UE RRC.

RAN WG3 approved – with one modification - the proposed text on the principle of TDD Radio Frame synchronization and Timing Advance mechanism, to be included in the UTRAN Overall description [3]. The agreed text is:
" In the UTRA TDD mode, the cells within the UTRAN are synchronized with respect to Radio Frame and Multiframe. For time alignment of the uplink radio signals from the UE to the UTRAN, timing advance can be applied whenever necessary. Timing advance is based on uplink burst timing measurements performed by the NodeB L1, and on Timing Advance commands sent downlink to the UE. The details are FFS."

However, RAN WG3 had questions on the proposed function split between UTRAN L1 and RRC for Timing Advance, and did not approve the corresponding suggested changes of the DCH and RACH Frame Protocol (FP) for the Iub/Iur interface. WG3 decided that a better knowledge of the requirements for the Timing Advance procedure in view of WG1 and WG2 is needed.

2. Questions to RAN1, RAN2

Therefore WG1 and WG2 are asked to provide – as an extension of the available information in WG1 [3] and WG2 documents [4] – advice with respect to the following issues.
1) What is the position of WG2 on the most suitable function split between the UTRAN protocol entities for the TDD Timing Advance procedure?
2) Is it possible to design a timing advance procedure that is purely performed at Layer 1, i.e. in the UTRAN NodeB, for all the possible UE RRC states (incl. Shared Channels)?
3) What kind of interactions between the UTRAN entities, especially between NodeB L1 and the higher layers in CRNC and/or SRNC, are required for the timing advance procedure?

An answer to these questions is desired as a basis for the potential message parameter extensions for the timing advance function in RAN WG3 specifications.

[1] TSGR3#5(99)604, „Timing advance for TDD", paper presented at RAN3#5, Helsinki, July 5-9, 1999.
[2] TSGR#4(99)357, „Timing advance mechanism for TDD", paper submitted to TSG RAN #4, Miami, June 17-19, 1999.
[3] TSGR1#2(99)284, "S1.24 v.1.1.0, TDD, Physical layer procedures description"
[4] TSGR2(99)435, "Timing advance mechanism for TDD"