Title: **Proposed Reply to Liaison Statement on Timing Advance for TDD**

Source: **RAN WG2**

To: **RAN WG3**

Cc: **RAN WG1**

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1. Introduction

In the "Liaison Statement on Timing Advance for TDD", TSG RAN WG3 presented the work on Timing Advance in WG3, and addressed some question to RAN WG2 regarding Timing Advance. RAN WG2 would like to thank RAN WG3 for this liaison statement. The answers to the questions are given in the section 2.

2. Answers to Questions

The answers to the questions of WG3 from the point of WG2 are provided in the following:

1) What is the position of WG2 on the most suitable function split between the UTRAN protocol entities for the TDD Timing Advance procedure?

Answer from RAN WG2:
The position of WG2 is to split the required functions for Timing Advance between Layer 1 and the RRC. In the UTRAN, the Layer 1 at NodeB is responsible for performing measurements. The measurement results are passed from the Layer 1 to RRC in two different ways. For dedicated channels, the Layer 1 can directly report to the RRC. For other uplink channels, where the user context is not known in the physical layer (e.g. RACH), the measurement result is passed together with the received message unit to MAC and RRC.
Timing Advance corrections are sent to the UE as RRC messages.

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)?

Answer from RAN WG2:
While it may be possible to perform Timing Advance at Layer 1 for some UE states and some kinds of transport channels, it is not possible to handle Timing Advance always at Layer 1 alone. One example is the initial access, where the RRC is the only UTRAN protocol entity that can distinguish between different UEs that have not yet an RRC connection.

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?

Answer from RAN WG2:
The Layer 1 in NodeB has to measure the RX Timing Deviation, which is used by RRC to determine the required Timing Advance values. This measurement has to be reported to the higher layers in RRC. For dedicated channels, the same mechanisms as for other measurement reports are used. For RACH and USCH, the Layer 1 has to report the measurement result together with the received message unit to MAC in RNC.

RAN WG2

[1]   TSGR2#6(99)849, "Description of the Timing Advance Mechanism for TDD", Source: Siemens
[2]   TSGR2#6(99)850, "Proposal for changes in 25.302 for Timing Advance", Source: Siemens
[3]   TSGR2#6(99)851, "Proposal for changes in 25.321 for Timing Advance", Source: Siemens

[4]   TSGR2#6(99)852, "Proposal for changes in 25.322 for Timing Advance", Source: Siemens