3GPP TSG-RAN Working Group 1, Meeting #6
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Source:	TSG RAN WG1
Title:	**Answer to**
	Liaison Statement from WG3 on Timing Advance for TDD
From:	RAN WG1
To:	RAN WG3
Cc:	RAN WG2

Introduction

At TSG RAN WG1 meeting #6 the *'Liaison Statement on Timing Advance for TDD'* was received from WG3. WG1 would like to thank WG3 for the information on the specification text adopted by WG3. In this document we would like to answer the questions on timing advance posed by WG3 from the WG1 perspective.

Questions and Answers

Question from WG3:
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 a WG1 perspective:

- It would be possible to design L1 based signaling to deal with the timing advance but that is not the assumption and has not been proposed in WG1 so far. As the update time interval is seen in the order of one or a few seconds, L1 based signaling is not seen as an attractive way.

- Higher layer signaling for timing advance is seen attractive by WG1. Thus, Node B could handle timing advance, but not purely by Layer 1. Higher layers have to be involved to control the required messages and to provide the messaging structure for layer 1.

Question from WG3:
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 a WG1 perspective:

- The L1 entities in Node B have to provide measurements of timing relation for the physical channels. These measurements will be reported to higher layers.
  According to general WG1 assumptions, L1 measurements can be either reported periodically or in the case a given threshold is crossed. The scheme to be followed by L1 is configured by higher layers. These principles will thus apply for timing advance measurements, too.
  It is up to higher layers to decide when to create timing advance commands and to compile the commands themselves.

- The UE has to react on a timing advance command received via higher layer signaling by accordingly adjusting its transmit time. Appropriate step sizes for timing advance are shown in Section *'6.5 – Timing Advance'* of specification document TS25.224.