Agenda Item: 10

Source: Siemens AG

Title: Proposal for changes in 25.321 for Timing Advance

Document for: Decision

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1. Introduction

A detailed concept for the handling of Timing Advance has been presented in [1]. Some changes to the MAC specification, TS25.321, are necessary to support timing advance. This paper presents these changes and contains a text proposal for TS25.321.

2. Summary

The measured RX Timing Deviation of RACH bursts has to be reported to RRC for CCCH data, e.g. for RRC Connection Requests. Because only the RRC can associate the CCCH data with a specific user, the data and the RX deviation measurement have to be passed to the RRC together through MAC and RLC.
In this text proposal, the parameter RX Timing Deviation is added as an optional parameter to the MAC-DATA Indication.

3. Text Proposal

8. Elements for layer-to-layer communication

8.1 Primitives between layers 1 and 2

see TS25.302

8.2 Primitives between MAC and RLC

8.2.1 Primitives

The primitives between MAC layer and RLC layer are shown in Table 8.2.1.1

Generic Name	Type				Parameters
	Request	Indication	Response	Confirm	
MAC-DATA	X	X			MU, TD
MAC-ERROR		X			[FFS]
MAC-STATUS		X	X		[FFS]

Table 8.2.1 Primitives between MAC layer and RLC layer

MAC-DATA Request/Indication

- MAC-DATA Request primitive is used to request that an upper layer PDU be sent using the procedures for the information transfer service.
- MAC-DATA Indication primitive indicates the arrival of an upper layer PDU received by means of the information transfer service.

MAC-ERROR Indication

- MAC-ERROR Indication primitive indicates to RLC that an error condition has occurred.

MAC-STATUS Indication/Response

- MAC-STATUS Indication primitive indicates to RLC about changes in the rules under which it may transfer data to MAC. Parameters of the primitive can indicate a transmission timer value, whether the RLC can transfer data and whether that data is restricted to supervisory frames only.
- MAC-STATUS Response enables RLC to acknowledge a MAC-STATUS Indication. It is possible that RLC would use this primitive to indicate that it has nothing to send or that it is in a suspended state.

1.1.1 Parameters

a) Message Unit (MU)
It contains the RLC layer message (RLC-PDU) to be transmitted or received by the MAC sub-layer.

b) RX Timing Deviation (TD)
It contains the RX Timing Deviation as measured by the physical layer for the physical resources carrying the data of the Message Unit. This parameter is optional and only for Indication. It is needed for the transfer of the RX Timing Deviation measurement of RACH transmissions carrying CCCH data to RRC.

[Note (from Tdoc WG2 009/99): This description are based on L2-LAC specification drafted TTC/ARIB Joint meeting. Because SAP between LAC and MAC is defined in our structure of MAC, the name of Signal is changed to Primitive. And format of explanation of primitives are changed to avoid verbose description. Request and Indication are combined to

explain. Primitives for Activation/Deactivation or Establish/Release or Connect/Disconnect for MAC connection are FFS.]

[Note (from Tdoc WG2 009/99*):*   The parameters for RLCMAC-ERROR and RLCMAC-STATUS are FFS.]

8.3   Primitives between MAC and RRC

8.3.1 Primitives

8.3.2 Parameters