TSG-RAN Working Group 2 (Radio layer 2 and Radio layer 3) *TSGR2#6(99)862*
Sophia Antipolis 16th to 20th August 1999

Agenda Item: 14.1

Source: **Siemens AG**

Title: TDD: RRC Connection Establishment and Maintenance messages

Document for: Decision

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1. Introduction

This paper proposes changes to the RRC Connection Establishment and Maintenance messages of 25.331 needed for TDD operation. The messages we would like to change are:

- RRC CONNECTION RE-ESTABLISHMENT
- RRC CONNECTION SETUP

The proposed changes are based on TDD contributions on Physical and Transport Channel Information Elements, shared channels and timing advance.

2. Explanations

For both messages we proposed to add an optional TIMING ADVANCE information element based on conclusions to enable timing advance for TDD operation. Without having a strong opinion we believe that this value belongs more to the set of UE information element instead to the set of physical channel information elements, because first it is independent from the used physical channels, dedicated and/or shared and second valid for all channels belonging to one UE.

For the RRC CONNECTION SETUP message we propose to change the Transport Channel Information elements according to allow configuring and addressing of multiple CCTrCHs for dedicated and shared channels and for uplink and downlink seperately. Each of these CCTrCH may contain either one or more dedicated or one or more shared transport channels. The mapping between Transport Channels and the multiple Coded Composite Transport Channels is supported by a new optional information element called CCTrCH identity.
For the Physical Channel Information elements of the RRC CONNECTION SETUP message we propose following changes:

- Uplink and Downlink DPCH info for each CCTrCH to support multiple CCTrCH
- Uplink DPCH power control info for each CCTrCH to allow invidual uplink power control for each CCTrCH independently, this is important e.g. for TDD when CCTrCHs are allocated onto dfferent timeslots with different interfrence conditions
- Deletion of Uplink and Downlink timeslot info, because it is proposed to have this information as a part of the DPCH info

Further, we splittet the column TYPE into two columns one for FDD and one for TDD to explicitly indicate for which mode the proposed changes are forseen. We do not propose having this split for all messages, but it can be discussed.

3. Proposed Changes

10.1.4.1 RRC CONNECTION RE-ESTABLISHMENT

<Functional description of this message to be included here>
RLC-SAP: t.b.d.
Logical channel: t.b.d.
Direction: UTRAN → UE

Information element category	**Information elements**	**REFERENCE**	**TYPE**		**NOTE**
			FDD	**TDD**	
	Message Type		M	M	
UE information elements	Uplink Timing advance		-	O	
Physical CH information elements	Default DPCH Offset Value		O	-	

10.1.4.7 RRC CONNECTION SETUP

This message is used by the network to accept the establishment of an RRC connection for an UE, including assignment of signalling link information, transport channel information and optionally physical channel information.
RLC-SAP: t.b.d.
Logical channel: CCCH
Direction: UTRAN → UE

Information element category	**Information elements**	**REFERENCE**	**TYPE**		**NOTE**	
			FDD	**TDD**		
	Message Type		M	M		
UE information elements	Initial UE identity		M	M	FFS whether conveyed on RRC or MAC.	
	S-RNTI		M	M		
	SRNC identity		M	M		
	C-RNTI		O	O	Only if assigned to a common transport channel	
	Activation time		O	O		
	Uplink Timing Advance		-	O	Timing advance for uplink transmissions	
RAB information elements	RAB identity		M	M	Indicates the signalling link	
	Signalling link type		M	M		
	RAB multiplexing info		M	M	For the signalling link	
TrCH information elements	TFCS		O	O	for Uplink ~~TFCS~~DCHs	for each CCTrCH
	TFC subset		O	O		
	TFCS		O	O	for Downlink ~~TFCS~~DCHs	
	TFCS		O	O	Uplink USCH's	For each CCTrCH
	TFC subset		O	O		
	TFCS		O	O	Downlink DSCH's	

	~~TFC subset~~		~~O~~				
	Transport channel identity		M	M	For each new transport channel		Uplink transport channels
	TFS		M	M			
	CCTrCH identity		O	O			
	Transport channel identity		M	M	For each new transport channel		Downlink transport channels
	TFS		M	M			
	CCTrCH identity		O	O			
PhyCH information elements	Frequency info		O	O			
	Uplink DPCH info		O	O	~~Maximum one of these~~ for each CCTrCH		uplink radio resources
	Uplink DPCH power control info		O	O			
	PRACH info		O	O			
	~~Uplink timeslot info~~		~~O~~				
	Primary CCPCH info		O	O		For each radio link, Note 1	downlink radio resources
	Secondary CCPCH info		O	O			
	Downlink DPCH info		O	O	for each CCTrCH		
	~~Secondary CCPCH info~~		O	O			
	SSDT indicator		O	-	Necessity is FFS		
	Gated Transmission Control info		O	-	FFS		
	Default DPCH Offset Value		O	-			

Note 1: ~~It is assumed that the DL timeslot configuration is the same for all radio links, whether or not macro-diversity is supported for TDD.~~ For TDD, multiple radio links are not supported.