

Agenda Item: 14.3
Source: SIEMENS AG
Title: TDD: Radio Access Bearer Control messages
Document for: Decision

Introduction

This paper proposes changes to the Radio Access Bearer Control messages of 25.331 needed for TDD operation and does not introduce new concepts, it just shows the impacts when changing these messages according the SAG contributions provided on Physical and Transport Channel Information Elements, Shared Channels, Timing Advance and RRC Connection Establishment and Maintenance messages.

Following messages are affected:

- PHYSICAL CHANNEL RECONFIGURATION
- RADIO ACCESS BEARER RECONFIGURATION
- RADIO ACCESS BEARER RELEASE
- RADIO ACCESS BEARER SETUP
- TRANSPORT CHANNEL RECONFIGURATION

Changes to RAB control messages

10.1.5.1 PHYSICAL CHANNEL RECONFIGURATION

This message is used by UTRAN to assign, replace or release a set of physical channels used by a UE.

RLC-SAP: t.b.d.

Logical channel: DCCH

Direction: UTRAN → UE

Information element category	Information elements	REFERENCE	TYPE		NOTE
			FDD	TDD	
	Message Type		M	M	
UE Information elements	Activation time		O	<u>O</u>	
	C-RNTI		O	<u>O</u>	Only RACH/FACH
	<u>Uplink Timing Advance</u>		-	<u>O</u>	<u>Timing advance for uplink transmissions</u>
UTRAN mobility Information elements	URA update indicator		O	<u>O</u>	When PCH shall be used, and when present, it instructs the UE to make URA updating
PhyCH information elements	<u>Uplink DPCH power control info</u>		<u>O</u>		
	Frequency info		O	<u>O</u>	
	Uplink DPCH info		O	<u>O</u>	Maximum <u>one of these</u> uplink radio resources for each CTrCH

Uplink DPCH power control info		<u>O</u>	<u>O</u>		
PRACH info		<u>O</u>	<u>O</u>		
Uplink time slot info		<u>Q</u>			
Primary CCPCH info		<u>O</u>	<u>O</u>		downlink radio resources
Secondary CCPCH info		<u>O</u>	<u>O</u>	For FACH	
Secondary CCPCH info		<u>O</u>	<u>O</u>	For RACH	
Downlink DPCH info		<u>O</u>	<u>O</u>	for each CCTrCH	
Downlink timeslot info		<u>Q</u>			Note 1
SSDT indicator		<u>O</u>	-	Necessity is FFS	
Gated Transmission Control info		<u>O</u>	-	FFS	
Default DPCH Offset Value		<u>O</u>	-		

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.

Note 1: For TDD, multiple radio links are not supported.

10.1.5.3 RADIO ACCESS BEARER RECONFIGURATION

This message is sent from UTRAN to reconfigure parameters related to a change of QoS. This procedure can also change the multiplexing of MAC, reconfigure transport channels and physical channels.

RLC-SAP: t.b.d.

Logical channel: DCCH

Direction: UTRAN → UE

Information element category	Information elements	REFERENCE	TYPE		NOTE
			FDD	TDD	
	Message Type		M	M	
UE Information elements	Activation time		<u>O</u>	<u>O</u>	
	C-RNTI		<u>O</u>	<u>O</u>	Only RACH/FACH
	Uplink Timing Advance		-	<u>O</u>	Timing advance for uplink transmissions
RAB information elements	RAB identity		M	M	For each RAB affected by this message
	RLC info		<u>O</u>	<u>O</u>	
	RAB multiplexing info		M	M	
TrCH information elements	TFCS		<u>O</u>	<u>O</u>	for uplink
	TFC subset		<u>O</u>	<u>O</u>	DCHs_DCH's
	TFCS		<u>O</u>	<u>O</u>	for downlink
	TFC subset		<u>Q</u>		DCHs_DCH's
	TFC subset		<u>Q</u>		for DCHs in uplink
	TFCS		<u>O</u>	<u>O</u>	for uplink
	TFC subset		<u>O</u>	<u>O</u>	USCH's
TFCS		<u>O</u>	<u>O</u>	for downlink DSCH's	

	Transport channel identity		O	<u>O</u>	For each removed transport channel	Uplink transport channels
	Transport channel identity		O	<u>O</u>	For each reconfigured or added transport channel	
	<u>CCTrCH identity</u>		<u>O</u>	<u>O</u>		
	TFS		O	<u>O</u>		
	Dynamic Control		O	-	For each reconfigured or added transport channel controlled by DRAC	
	Transmission time validity		O	-		
	Time duration before retry		O	-		
	Silent period duration before release		O	-		
	Transport channel identity		O	<u>O</u>	For each removed transport channel	Downlink transport channels
	Transport channel identity		O	<u>O</u>	For each reconfigured or added transport channel	
	TFS		O	<u>O</u>		
	<u>CCTrCH identity</u>		<u>O</u>	<u>O</u>		
PhyCH information elements	<u>Uplink DPCH power control info</u>		<u>O</u>			
	Frequency info		O	O		
	Uplink DPCH info		O	<u>O</u>	Maximum one of these for each CCTrCH	Uplink radio resources
	<u>Uplink DPCH power control info</u>		<u>O</u>	<u>O</u>		
	PRACH info		O	<u>O</u>		
	<u>Uplink timeslot info</u>		<u>O</u>			
	Primary CCPCH info		O	<u>O</u>	For each radio link ₁ Note 1	Downlink radio resources
	Secondary CCPCH info		O	O		
	Downlink DPCH info		O	<u>O</u>		
	<u>Downlink timeslot info</u>		<u>O</u>		Note 1	
	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.

Note 1: For TDD, multiple radio links are not supported.

10.1.5.5 RADIO ACCESS BEARER RELEASE

<Functional description of this message to be included here>

RLC-SAP: t.b.d.

Logical channel: DCCH

Direction: UTRAN → UE

Information element category	Information elements	REFERENCE	TYPE		NOTE	
			FDD	TDD		
	Message Type		M	<u>M</u>		
UE Information elements	Activation time		<u>O</u>	<u>O</u>		
	C-RNTI		<u>O</u>	<u>O</u>	Only RACH/FACH	
RAB information elements	RAB identity		M	<u>O</u>	For each released RAB	
	RAB identity		<u>O</u>	<u>O</u>	For each other RAB affected by this message	
	RAB multiplexing info		<u>O</u>	<u>O</u>		
	Uplink Timing Advance		-	<u>O</u>	Timing advance for uplink transmissions	
TrCH information elements	TFCS		<u>O</u>	<u>O</u>	for uplink DCHs DCH's	for each CCTrCH
	TFC subset		<u>O</u>	<u>O</u>		
	TFCS		<u>O</u>	<u>O</u>	for downlink DCHs DCH's	
	TFC subset		<u>O</u>		for DCHs in uplink	
	TFCS		<u>O</u>	<u>O</u>	for uplink USCH's	for each CCTrCH
	TFC subset		<u>O</u>	<u>O</u>		
	TFCS		<u>O</u>	<u>O</u>	for downlink DSCH's	
	Transport channel identity		<u>O</u>	<u>O</u>	For each removed transport channel	Uplink transport channels
	Transport channel identity		<u>O</u>	<u>O</u>	For each reconfigured or added (FFS) transport channel	
	TFS		<u>O</u>	<u>O</u>		
	CCTrCH identity		<u>O</u>	<u>O</u>		
	Dynamic Control		<u>O</u>	-	For each reconfigured or added (FFS) transport channel, controlled by DRAC	
	Transmission time validity		<u>O</u>	-		
	Time duration before retry		<u>O</u>	-		
Silent period duration before release		<u>O</u>	-			
Transport channel identity		<u>O</u>	<u>O</u>	For each removed transport channel	Downlink transport channels	
Transport channel identity		<u>O</u>	<u>O</u>	For each reconfigured or added transport channel		
TFS		<u>O</u>	<u>O</u>			
CCTrCH identity		<u>O</u>	<u>O</u>			
PhyCH information elements	Uplink DPCH power control info		<u>O</u>			
	Frequency info		<u>O</u>	<u>O</u>		
	Uplink DPCH info		<u>O</u>	<u>O</u>	Maximum one of these for each CCTrCH	Uplink Radio Resources
	Uplink DPCH power control info		<u>O</u>	<u>O</u>		
	PRACH info		<u>O</u>	<u>O</u>		
	Uplink timeslot info		<u>O</u>			

	Primary CCPCH info		O	O		For each radio link, Note 1
	Secondary CCPCH info		O	O		
	Downlink DPCH info		O	O	for each CCTrCH	
	Downlink timeslot info		O		Note 1	
						Downlink radio resources

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.

Note 1: For TDD, multiple radio links are not supported.

10.1.5.7 RADIO ACCESS BEARER SETUP

<Functional description of this message to be included here>

RLC-SAP: t.b.d.

Logical channel: DCCH

Direction: UTRAN → UE

Information element category	Information elements	REFERENCE	TYPE		NOTE		
			FDD	TDD			
	Message Type		M	M			
CN information elements	NAS binding info		M	M	Transparent non access stratum info e.g. bearer identity.		
	CN domain identity						
UE Information elements	Activation time		O	O	Only RACH/FACH		
	C-RNTI		O	O			
RAB information elements	RAB identity		M	M	For the new RAB		
	RLC info		M	M			
	RAB multiplexing info		M	M			
	RAB identity		O	O	For each other RAB affected by this message		
RAB multiplexing info		O	O				
TrCH information elements	TFCS		O	O	for uplink DCHs DCH"s	for each CCTrCH	
	TFCS subset		O	O			
	TFCS		O	O	for downlink DCHs DCH"s		
	TFCS subset		O	O			
	TFCS		O	O	For uplink USCH"s	For each CCTrCH	
	TFCS subset		O	O			
	TFCS		O	O	For downlink DSCH"s		
	TFCS subset		O	O			
		Transport channel identity		O	O	For each removed transport channel	Uplink transport channels
		Transport channel identity		O	O		
	TFS		O	O	For each reconfigured or added transport channel		
	CCTrCH identity		O	O			
	Dynamic Control		O	-	For each reconfigured or added transport channel, controlled by DRAC		
	Transmission time validity		O	-			
	Time duration before retry		O	-			
		5/7					

	Silent period duration before release		O	-		
	Transport channel identity		O	<u>O</u>	For each removed (FFS) transport channel	Downlink transport channels
	Transport channel identity		O	<u>O</u>	For each reconfigured or added transport channel	
	TFS		O	<u>O</u>		
	CCTrCH identity		<u>O</u>	<u>O</u>		
PhyCH information elements	Uplink DPCH power control info		<u>O</u>			
	Frequency info		O	<u>O</u>		
	Uplink DPCH info		O	<u>O</u>	Maximum one of these for each CCTrCH	Uplink radio resources
	Uplink DPCH power control info		<u>O</u>	<u>O</u>		
	PRACH info		O	<u>O</u>		
	Uplink timeslot info		<u>O</u>			
	Primary CCPCH info		O	<u>O</u>	For each radio link, Note 1	Downlink radio resources
	Secondary CCPCH info		O	<u>O</u>		
	Downlink DPCH info		O	<u>O</u>		
	Downlink timeslot info		<u>O</u>		Note 1	
	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.

Note 1: For TDD, multiple radio links are not supported.

10.1.5.9 TRANSPORT CHANNEL RECONFIGURATION

This message is used by UTRAN to configure the transport channel of a UE. This also includes a possible reconfiguration of physical channels. The message can also be used to assign a TFC subset and reconfigure physical channel.

RLC-SAP: t.b.d.

Logical channel: DCCH

Direction: UTRAN → UE

Information element category	Information elements	REFERENCE	TYPE		NOTE
			FDD	TDD	
	Message Type		M	<u>M</u>	
UE Information elements	Activation time		O	<u>O</u>	
	C-RNTI		O	<u>O</u>	Only RACH/FACH
	Control-only-state-timer		O	<u>O</u>	FFS
	Uplink Timing Advance		<u>O</u>	<u>O</u>	Timing advance for uplink transmissions
TrCH information elements	TFCS		O	<u>O</u>	for uplink DCHs
	TFC subset		<u>O</u>	<u>O</u>	DCH's CCTrCH

		0	0	for downlink DCHs DCH's	
	TFC subset	0		for DCHs in uplink	
	TFC subset	0	0	For uplink USCH's	For each CCTrCH
	TFC subset	0	0	For downlink DSCH's	
	Transport channel identity	0	0	For each reconfigured transport channel	Uplink transport channels
	TFS	0	0		
	CCTrCH identity	0	0		
	Dynamic Control	0	-	For each reconfigured transport channel, controlled by DRAC	
	Transmission time validity	0	-		
	Time duration before retry	0	-		
	Silent period duration before release	0	-		
	Transport channel identity	0	0	For each reconfigured transport channel	Downlink transport channels
	TFS	0	0		
	CCTrCH identity	0	0		
PhyCH information elements	Uplink DPCH power control info	0			
	Frequency info	0	0		
	Uplink DPCH info	0	0	Maximum one of these for each CCTrCH	Uplink radio resources
	Uplink DPCH power control info	0	0		
	PRACH info	0	0		
	Uplink timeslot info	0			
	Primary CCPCH info	0	-		Downlink radio resources
	Secondary CCPCH info	0	0	For each radio link	
	Downlink DPCH info	0	0	for each CCTrCH	
	Downlink timeslot info	0		Note 1	
	SSDT indicator	0	-	Necessity is FFS	
	Gated Transmission Control info	0	-	FFS	
	Default DPCH Offset Value	0	-		

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.

Note 1: For TDD, multiple radio links are not supported.