TSGR2#6(99)863

TSG-RAN Working Group 2 (Radio layer 2 and Radio layer 3) Sophia Antipolis 16th to 20th August 1999

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 contribtions provided on Physical and Transport Channel Information Elements, Shared Channels, Timing Advance and RRC Connection Esablishment 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 | Information elements | REFERENCE | TYPE | | NOTE |
|--|-----------------------------------|-----------|--------------|------------|--|
| element category | | | FDD | <u>TDD</u> | |
| | Message Type | | М | <u>M</u> | |
| UE Information | Activation time | | 0 | <u>0</u> | |
| elements | C-RNTI | | 0 | 0 | Only RACH/FACH |
| | Uplink Timing Advance | | = | <u>O</u> | Timing advance for uplink transmissions |
| | | | | | |
| UTRAN mobility Information elements | URA update indicator | | О | <u>O</u> | When PCH shall be used, and when present, it instructs the UE to make URA updating |
| PhyCH | Uplink DPCH power control info | | 0 | | |
| information | Spinik DF Si i power control inio | | - | | |
| elements | Frequency info | | 0 | <u>0</u> | |
| | Uplink DPCH info | | 0 | <u>O</u> | Maximum uplink radio |

| Uplink DPCH power control info | О | 0 | 7 |
|---|---|----------|-----------------------------|
| PRACH info | Ō | 0 | |
| Uplink time slot info | 0 | | |
| Primary CCPCH info | 0 | <u>0</u> | For downlink |
| Secondary CCPCH info | O | 0 | FACH radio resouces |
| Secondary CCPCH info | 0 | 0 | For link, RACH Note |
| Downlink DPCH info | 0 | 0 | for 1 each CCTr CH |
| Downlink timeslot info | 0 | | |
| SSDT indicator | 0 | <u>-</u> | Necessity is FFS |
| Gated Transmission Control info Default DPCH Offset Value | 0 | <u>-</u> | FFS |
| | | | |

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 | Information elements | REFERENCE | TYPE | | NOTE | |
|---------------------|-----------------------|-----------|------------|------------|------------------------------|--------------------|
| category | | | <u>FDD</u> | <u>TDD</u> | | |
| | Message Type | | М | M | | |
| UE Information | Activation time | | 0 | <u>O</u> | | |
| elements | C-RNTI | | 0 | 0 | Only RACH/F | ACH |
| | Uplink Timing Advance | | = | <u>O</u> | Timing advance transmissions | |
| RAB | RAB identity | | M | M | | For each |
| information | RLC info | | 0 | 0 | FFS | RAB affected |
| elements | RAB multiplexing info | | М | M | | by this message |
| TrCH | TFCS | | 0 | 0 | for uplink | for each |
| information | TFC subset | | 0 | 0 | DCHs DCH's | CCTrCH |
| elements | TFCS | | 0 | <u>O</u> | for downlink DCHs DCH's | |
| | TFC subset | | θ | | for DCHs in u | olink |
| | TFCS | | 0 | 0 | for uplink | for each |
| | TFC subset | | 0 | 0 | USCH's | CCTrCH |
| | TFCS | | 0 | 0 | for downlink DSCH's | |
| | | | | | | |

| | Transport channel identity | 0 | 0 | For each | Uplink |
|------------|---------------------------------------|----------|----------|---------------------|--------------|
| | Tanoport Sharmor assumy | | Ť | removed | transport |
| | | | | transport | channels |
| | | | | channel | |
| | Transport channel identity | 0 | 0 | For each | 1 |
| | CCTrCH identity | 0 | 0 | reconfigured | |
| | TFS | 0 | 0 | or added | |
| | | | | transport | |
| | | | | channel | |
| | Dynamic Control | 0 | <u>-</u> | For each | |
| | Transmission time validity | 0 | | reconfigured | |
| | Time duration before retry | 0 | | or added | |
| | Silent period duration before release | 0 | <u>-</u> | transport | |
| | | | | channel | |
| | | | | controlled | |
| | | | | by DRAC | |
| | Transport shows a list 100 | | | F | ID |
| | Transport channel identity | 0 | <u>O</u> | For each | Downlink |
| | | | | removed | transport |
| | | | | transport | channels |
| | Transport shannel identify | | | channel For each | 4 |
| | Tranpsort channel identity | 0 | 0 | reconfigured | |
| | TFS | 0 | 0 | or added | |
| | CCTrCH identity | <u>o</u> | 0 | transport | |
| | | | | channel | |
| | | | | chamie | |
| PhyCH | Uplink DPCH power control info | 0 | | | |
| nformation | | | | | |
| elements | Frequency info | 0 | О | | |
| | Uplink DPCH info | 0 | 0 | Maximum | Uplink radio |
| | Uplink DPCH power control info | 0 | 0 | one of these | resources |
| | | | | for each | |
| | | | | <u>CCTrCH</u> | |
| | PRACH info | 0 | 0 | | |
| | Uplink timeslot info | Ð | | | |
| | | | | | |
| | Primary CCPCH info | 0 | 0 | For | Downlink |
| | Secondary CCPCH info | 0 | 0 | each | radio |
| | Downlink DPCH info | 0 | 0 | for radio | resources |
| | | | - | each link, | |
| | | | | CCTr Note | |
| | | | | <u>CH</u> 1 | |
| | | | | DPCH | |
| | Downlink timeslot info | 0 | | Note 1 | |
| | SSDT indicator | 0 | _ | Necessity is F | FFS |
| | | | | 10000011, 101 | |
| | 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 macrodiversity 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 | Information elements | REFERENCE | TYPE | | NOTE | | |
|---------------------|---------------------------------------|--------------|------------|------------|--|-----------------------------------|--|
| category | | | <u>FDD</u> | <u>TDD</u> | | | |
| | Message Type | | М | <u>M</u> | | | |
| | | | | | | | |
| | Activation time | | 0 | 0 | | | |
| elements | C-RNTI | | 0 | <u>0</u> | Only RACH/F. | ACH | |
| RAB | RAB identity | | М | 0 | For each relea | ased RAB | |
| information | RAB identity | | 0 | 0 | For each othe | | |
| elements | | | | _ | affected by th | | |
| | RAB multiplexing info | | 0 | <u>0</u> | | | |
| | Uplink Timing Advance | | Ξ | <u>O</u> | Timing advantransmissions | | |
| T 011 | TF00 | | | _ | | le i | |
| TrCH | TFCS | | 0 | <u>O</u> | for uplink | for each | |
| nformation | TFC subset | | 0 | 0 | DCHs DCH's | <u>CCTrCH</u> | |
| elements | TFCS | | 0 | <u>o</u> | for downlink DCHs DCH's | | |
| | TFC subset | | 0 | | for DCHs in u | nlink | |
| | 11 3 ddbddt | | | | 1.51 DOI 10 111 U | VIIIIIX | |
| | TFCS | | 0 | 0 | for uplink | for each | |
| | TFC subset | | 0 | 0 | USCH's | CCTrCH | |
| | TFCS | - | | | for downlink | 5011011 | |
| | IFCS | | <u>O</u> | <u>O</u> | DSCH's | | |
| | Transport channel identity | | 0 | <u>O</u> | For each removed transport channel | Uplink transport channels | |
| | Transport channel identity | | 0 | 0 | For each | 1 | |
| | | | | | | | |
| | TFS | | 0 | 0 | reconfigured or added | | |
| | CCTrCH identity | | <u>O</u> | <u>O</u> | (FFS) transport channel | | |
| | Dynamic Control | | 0 | - | For each | 1 | |
| | Transmission time validity | | Ō | - | reconfigured | | |
| | Time duration before retry | | 0 | _ | or added | | |
| | | | | = | (FFS) | | |
| | Silent period duration before release | | 0 | = | transport channel, controlled by DRAC | | |
| | | | _ | _ | <u> </u> | <u> </u> | |
| | Transport channel identity | | 0 | <u>O</u> | For each removed transport channel | Downlink transport channels | |
| | Transport channel identity | | 0 | 0 | For each | 1 | |
| | TFS | | 0 | 0 | reconfigured | | |
| | CCTrCH identity | | <u>O</u> | 0 | or added transport channel | | |
| | | | + | | onaniei | 1 | |
| PhyCH information | Uplink DPCH power control info | | θ | | | | |
| elements | Frequency info | | 0 | <u>O</u> | | | |
| | Uplink DPCH info | | 0 | 0 | Maximum | Uplink Radio | |
| | Uplink DPCH power control info | | 0 | 0 | one of these for each | Resources | |
| | | | | | <u>CCTrCH</u> | | |
| | PRACH info | | 0 | 0 | CCTrCH | _ | |

| Primary CCPCH info | 0 | 0 | | For | Downlink |
|------------------------|---|---|---------------------------|---|-----------|
| Secondary CCPCH info | 0 | 0 | | each | radio |
| Downlink DPCH info | 0 | | for each CCTr CH | radio link <u>,</u> <u>Note</u> <u>1</u> | resources |
| Downlink timeslot info | Φ | | Note 1 | • | |
| | | | | | |

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 \rightarrow UE

| Information | Information elements | REFERENCE | TYPE | | NOTE | | |
|-------------------------|--------------------------------|-----------|------------|------------|---|--|--|
| element category | | | <u>FDD</u> | <u>TDD</u> | | | |
| | Message Type | | М | <u>M</u> | | | |
| CN information elements | NAS binding info | | M | <u>M</u> | Transparent non access stratum info e.g. bearer identity. | | |
| | CN domain identity | | | | | | |
| UE Information | Activation time | | 0 | 0 | | | |
| elements | C-RNTI | | 0 | 0 | Only RACH/FACH | | |
| RAB | RAB identity | | М | М | For the new RAB | | |
| information | RLC info | | M | M | | | |
| elements | RAB multiplexing info | | M | M | | | |
| | DAD identify | | | | Farrant ath DAD | | |
| | RAB identity | | 0 | 0 | For each other RAB | | |
| | RAB multiplexing info | | 0 | <u>O</u> | affected by this message | | |
| TrCH | TFCS | | 0 | <u>O</u> | for uplink for each | | |
| information | TFC subset | | 0 | 0 | DCHs DCH"s CCTrCH | | |
| elements | TFCS | | 0 | 0 | for downlink DCHs DCH"s | | |
| | TFC subset | | 0 | 0 | for DCHs in uplink | | |
| | TFCS | | 0 | 0 | For uplink For each | | |
| | TFC subset | | 0 | 0 | USCH"s CCTrCH | | |
| | TFCS | | 0 | 0 | For downlink | | |
| | | | | | DSCH"s | | |
| | Transport channel identity | | 0 | 0 | For each Uplink | | |
| | Transport charmer identity | | | <u>o</u> | removed transport channels | | |
| | Tools on the control of the | | | | channel | | |
| | Transport channel identity TFS | | 0 | 0 | For each | | |
| | | | | 0 | reconfigured or added | | |
| | CCTrCH identity | | <u>O</u> | <u>O</u> | transport channel | | |
| | Dynamic Control | | 0 | - | For each | | |
| | Transmission time validity | | 0 | - | reconfigured | | |
| | Time duration before retry | | 0 | = | or added transport | | |
| | | 5/7 | | | channel, controlled by DRAC | | |

| | Silent period duration before release | 0 | _ | | |
|------------|---------------------------------------|----------|----------|--|-----------------------------------|
| | | | | | |
| | Transport channel identity | 0 | 0 | For each removed (FFS) transport channel | Downlink transport channels |
| | Transport channel identity | 0 | 0 | For each | |
| | TFS | 0 | 0 | reconfigured | |
| | CCTrCH identity | <u>O</u> | 0 | or added transport channel | |
| PhyCH | Uplink DPCH power control info | θ | | | |
| nformation | op | | | | |
| elements | Frequency info | 0 | <u>0</u> | | |
| | Uplink DPCH info | 0 | 0 | Maximum | Uplink radio |
| | Uplink DPCH power control info | <u>O</u> | 0 | one of these for each CCTrCH | |
| | PRACH info | 0 | 0 | <u> </u> | |
| | Uplink timeslot info | 0 | | | |
| | Primary CCPCH info | 0 | 0 | For | Downlink |
| | Secondary CCPCH info | Ō | Ō | each | radio |
| | Downlink DPCH info | O | <u>O</u> | for radio each link, Note CH 1 | resources |
| | Downlink timeslot info | 0 | | Note 1 | 1 |
| | SSDT indicator | 0 | <u>-</u> | Necessity is FFS | |
| | Gated Transmission Control info | 0 | <u> </u> | 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.

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 \rightarrow UE

| Information | Information elements REFERENC | | TYPE | | NOTE |
|----------------------|-------------------------------|--|------------|----------|---|
| element category | | | <u>FDD</u> | TDD | |
| | Message Type | | М | M | |
| UE Information | Activation time | | 0 | 0 | |
| elements | C-RNTI | | 0 | 0 | Only RACH/FACH |
| | Control-only-state-timer | | 0 | 0 | FFS |
| | Uplink Timing Advance | | <u>O</u> | <u>O</u> | Timing advance for uplink transmissions |
| | | | | | |
| TrCH | TFCS | | 0 | 0 | for uplink for each |
| information elements | TFC subset | | <u>O</u> | <u>O</u> | DCHs DCH"s CCTrCH |

| | | | 1 | 1 | 7 |
|------------|---------------------------------------|----------------|---------------|------------------------------------|---------------|
| | TFCS | 0 | 0 | for downlink | |
| | TFC subset | θ | | for DCHs in u | |
| | | | | | |
| | <u>TFCS</u> | <u>O</u> | 0 | For uplink | For each |
| | TFC subset | <u>O</u> | 0 | <u>USCH"s</u> | <u>CCTrCH</u> |
| | TFCS | <u>O</u> | 0 | For downlink DSCH"s | |
| | Transport channel identity | 0 | 0 | For each | Uplink |
| | TFS | 0 | 0 | reconfigured | transport |
| | CCTrCH identity | 0 | 0 | transport | channels |
| | <u>Gorrorridentity</u> | l S | <u> </u> | channel | 0.10.11.010 |
| | Dynamic Control | 0 | - | For each | 1 |
| | Transmission time validity | 0 | - | reconfigured | |
| | Time duration before retry | 0 | = | transport | |
| | Silent period duration before release | 0 | Ξ | channel, controlled by DRAC | |
| | Transport channel identity | 0 | | For each | Downlink |
| | TFS | 0 | <u>0</u> | reconfigured | transport |
| | CCTrCH identity | <u>0</u> | 0 | transport | channels |
| | | | | 0.1.0.11.10. | -L |
| PhyCH | Uplink DPCH power control info | 0 | | | |
| nformation | | | _ | | |
| lements | Frequency info | 0 | <u>O</u> | | |
| | Uplink DPCH info | 0 | 0 | Maximum | Uplink radio |
| | Uplink DPCH power control info | <u>0</u> | <u>O</u> | one of these for each CCTrCH | resources |
| | PRACH info | 0 | <u>O</u> | | |
| | Uplink timeslot info | 0 | | | |
| | | | | | |
| | Primary CCPCH info | 0 | <u>-</u> | For | Downlink |
| | Secondary CCPCH info | 0 | 0 | each | radio |
| | Downlink DPCH info | 0 | <u>O</u> | for radio each link | resources |
| | Downlink timeslot info | 0 | | CH Note 1 | 1 |
| | | | | | |
| | SSDT indicator | 0 | - | Necessity is F | FS |
| | Gated Transmission Control info | 0 | - | FFS | |
| | Default DPCH Offset Value | 0 | - | T | |
| | 20.000 Pilot Valuo | | - | | |
| | u l | | | | |

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.