### TSG-RAN Meeting #13 Beijing, China, 18 - 21, September, 2001

### TSGRP#13(01) 0575

Title: Agreed CRs to TS 25.401

Source: TSG-RAN WG3

Agenda item: 8.3.3/8.3.4/9.4.3

| RP Tdoc   | R3 Tdoc   | Spec   | CR_Num | Re | Release | CR_Subject                        | Ca | tCur_Ve | New_Ver     | Workitem      |
|-----------|-----------|--------|--------|----|---------|-----------------------------------|----|---------|-------------|---------------|
|           | D2 040404 | 25 404 | 000    |    | Del C   |                                   |    | 5 0 0   | <b>5</b> 40 |               |
| RP-010575 | R3-012194 | 25.401 | 033    |    | Rel-5   | Uplink power control for LCR TDD  | A  | 5.0.0   | 5.1.0       | LCRTDD-lublur |
| RP-010575 | R3-012193 | 25.401 | 034    |    | Rel-4   | Uplink power control for LCR TDD  | Α  | 4.1.0   | 4.2.0       | LCRTDD-lublur |
| RP-010575 | R3-012409 | 25.401 | 035    |    | R99     | Power control description for TDD | F  | 3.7.0   | 3.8.0       | TEI           |
| RP-010575 | R3-012707 | 25.401 | 036    | 2  | R99     | Clarification of coordinated DCHs | F  | 3.7.0   | 3.8.0       | TEI           |
| RP-010575 | R3-012708 | 25.401 | 037    | 2  | Rel-4   | Clarification of coordinated DCHs | A  | 4.1.0   | 4.2.0       | TEI           |
| RP-010575 | R3-012709 | 25.401 | 038    | 2  | Rel-5   | Clarification of coordinated DCHs | A  | 5.0.0   | 5.1.0       | TEI           |

### 3GPP TSG-RAN3 Meeting #23 Helsinki, Finland, 27th-31st August 2001

|                                  |   | C  | HANGE   | EREQ                      | UES        | т  |   | CR-Form-v3           |
|----------------------------------|---|--|---|---------------------------|------------|--|---|----------------------|
| æ                                | 25.40                                       | 01 CR  | 033   | ж rev                     | <b>-</b> # | Current vers   | sion: <b>5.0.(</b>  | ) <sup>#</sup>       |
| For <u>HELP</u> on L             | sing this                                   | form, see b  | ottom of thi  | s page or                 | look at i  | the pop-up text  | t over the X s  | ymbols.              |
| Proposed change                  | affects:                                    | ¥ (U)SII   | M ME  | UE                        | Radio /    | Access Networ  | k X Core I  | Network              |
| Title: ೫                         | Uplink p                                    | ower contro  | ol for LCR T  | DD                        |            |  |   |                      |
| Source: #                        | R-WG  | 3  |   |                           |            |  |   |                      |
| Work item code: %                | TEI   |  |   |                           |            | <i>Date:</i> ೫   | August 200  | )1                   |
| Category: ೫                      | Α   |  |   |                           |            | Release: ೫   | Rel-5   |                      |
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| Reason for change                |   | he power co<br>lode.   | ntrol functio   | on descrip                | tion is n  | ot complete wi   | th respect to t   | he TDD               |
| Summary of chang                 | <b>je:</b>                                  | <mark>e text is upd</mark>   | ated.   |                           |            |  |   |                      |
| Consequences if<br>not approved: | Th<br>Th<br>cor                             | e CR is bac<br>is CR has o   | kward comp<br>nly isolated<br>ur in case o  | patible to t<br>impact to | the curre  | ol description in<br>ent version of R<br>rent version of<br>rentations due | 899.<br>R99. (A poter   | ntial impact         |
| Clauses affected:                | <mark>ቻ 7.2</mark>                          | 2.4.8.1, 7.2.4   | .8.3, 7.2.4.  | 8.4                       |            |  |   |                      |
| Other specs<br>affected:         | ж X   | Other core<br>Test specif<br>O&M Spec  |   | ons ¥                     |            | 1v3.7.0 CR 03<br>1v4.1.0 CR 03   |   |                      |
| Other comments:                  | ж <mark>т</mark>                            | his CR is ba   | sed on the  | <mark>"in princ</mark> ip | le agree   | d" CR of R3#2  | 2 in R3-0119  | 97.                  |

#### How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: <u>http://www.3gpp.org/3G\_Specs/CRs.htm</u>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked **#** contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under <u>ftp://www.3gpp.org/specs/</u> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

#### 7.2.4.8 RF power control

This group of functions controls the level of the transmitted power in order to minimise interference and keep the quality of the connections. It consist of the following functions: UL Outer Loop Power Control, DL Outer Loop Power Control, UL Inner Loop Power Control, DL Inner Loop Power Control, UL Open Loop Power Control and DL Open Loop Power Control.

#### 7.2.4.8.1 UL OUTER LOOP POWER CONTROL

The UL Outer Loop Power Control located in the SRNC [TDD – except for uplink shared channels where it is located in the CRNC] sets the target quality value for the UL Inner Loop Power Control which is located in Node B for FDD and 1.28 Mcps TDD and is located in the UE for 3.84 Mcps TDD. It receives input from quality estimates of the transport channel. The UL outer loop power control is mainly used for a long-term quality control of the radio channel.

In FDD and 1.28 Mcps TDD this function is located in the UTRAN, in 3.84 Mcps TDD the function is performed in UTRAN and the target quality value is sent to the UE by the SRNC or the CRNC, respectively.

In FDD<u>and 1.28 Mcps TDD</u>, if the connection involves both a SRNS and a DRNS the function UL Outer Loop Power Control (located in the SRNC<u>[1.28 Mcps TDD – or in the CRNC, respectively]</u>) sets the target quality for the UL Inner Loop Power Control function (located in Node B).

#### 7.2.4.8.2 DL OUTER LOOP POWER CONTROL

The DL Outer Loop Power Control sets the target quality value for the DL inner loop power control. It receives input from quality estimates of the transport channel, measured in the UE. The DL outer loop power control is mainly used for a long-term quality control of the radio channel.

This function is located mainly in the UE, but some control parameters are set by the UTRAN.

The SRNC, regularly (or under some algorithms), sends the target down link power range based on the measurement report from UE.

#### 7.2.4.8.3 UL INNER LOOP POWER CONTROL

The UL Inner Loop Power Control sets the power of the uplink dedicated [TDD – and shared] physical channels.

In FDD, it is a closed loop process. It receives the quality target from UL Outer Loop Power Control and quality estimates of the uplink dedicated physical control channel. The power control commands are sent on the downlink dedicated physical control channel to the UE. This function is located in both the UTRAN and the UE.

In <u>3.84 Mcps</u> TDD it is a open loop process, it receives the quality target from the UL Outer Loop Power Control and uses the quality target and quality estimates of downlink channels to set the transmit power. This function is located in the UE.

In 1.28 Mcps TDD, it is a closed loop process. It receives the quality target from UL Outer Loop Power Control, and quality estimates of the uplink dedicated physical channels as well as physical uplink shared channels, if any. The power control commands are sent on the downlink dedicated physical channels and physical downlink shared channels, if any, to the UE. This function is located in both the UTRAN and the UE.

#### 7.2.4.8.4 DL INNER LOOP POWER CONTROL

The DL Inner Loop Power Control sets the power of the downlink dedicated [TDD – and shared] physical channels. It receives the quality target from DL Outer Loop Power Control and quality estimates of the [FDD – downlink dedicated physical control channel] [TDD – downlink dedicated physical channels and physical downlink shared channels if any]. The power control commands are sent on the [FDD – uplink dedicated physical control channel] [TDD – downlink shared channels if any] to the UTRAN.

This function is located in both the UTRAN and the UE.

3

### 7.2.4.8.5 UL OPEN LOOP POWER CONTROL

The UL Open Loop Power Control sets the initial power of the UE, i.e. at random access. The function uses UE measurements and broadcasted cell/system parameters as input.

This function is located in both the UTRAN and the UE.

### 7.2.4.8.6 DL OPEN LOOP POWER CONTROL

The DL Open Loop Power Control sets the initial power of downlink channels. It receives downlink measurement reports from the UE.

This function is located in both the UTRAN and the UE.

### Tdoc R3-012193

3GPP TSG-RAN3 Meeting #23 Helsinki, Finland, 27th-31st August 2001 CR-Form-v3 CHANGE REQUEST ж 25.401 CR 034 ₩ rev ℜ Current version: ж 4.1.0For **HELP** on using this form, see bottom of this page or look at the pop-up text over the **#** symbols. (U)SIM ME/UE Radio Access Network X Core Network Proposed change affects: # Uplink power control for LCR TDD Title: Ж R-WG3 Source: æ Work item code: # TEI Date: # August 2001 жF Category: Release: # Rel-4 Use one of the following categories: Use one of the following releases: **F** (essential correction) (GSM Phase 2) 2 A (corresponds to a correction in an earlier release) R96 (Release 1996) (Release 1997) B (Addition of feature), R97 (Release 1998) **C** (Functional modification of feature) R98 **D** (Editorial modification) (Release 1999) R99 Detailed explanations of the above categories can REL-4 (Release 4) be found in 3GPP TR 21.900. (Release 5) REL-5 Reason for change: # The power control function description is not complete with respect to the TDD mode. Summary of change: # The text is updated. If this CR is not approved, the power control description in 25.401 is incorrect. Consequences if ж not approved: The CR is backward compatible to the current version of R99. This CR has only isolated impact to the current version of R99. (A potential impact could only occur in case of incorrect implementations due to

| Clauses affected: | <b>%</b> 7.2.4.8.1, 7.2.4.8.3, 7.2.4.8.4                                  |
|-------------------|---|
|                   |   |
| Other specs       | # X Other core specifications 業 25.401v3.7.0 CR 035                       |
| •                 | 25.401v5.0.0 CR 033   |
| affected:         | Test specifications   |
|                   | O&M Specifications  |
|                   |   |
| Other comments:   | # This CR is based on the "in principle agreed" CR of R3#22 in R3-011997. |

misinterpretation of the description.)

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#### 7.2.4.8.2 DL OUTER LOOP POWER CONTROL

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This function is located in both the UTRAN and the UE.

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#### 7.2.4.8.5 UL OPEN LOOP POWER CONTROL

The UL Open Loop Power Control sets the initial power of the UE, i.e. at random access. The function uses UE measurements and broadcasted cell/system parameters as input.

This function is located in both the UTRAN and the UE.

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The DL Open Loop Power Control sets the initial power of downlink channels. It receives downlink measurement reports from the UE.

This function is located in both the UTRAN and the UE.

### 3GPP TSG-RAN3 Meeting #23 Helsinki, Finland, 27<sup>th</sup> -31<sup>st</sup> August 2001

# Tdoc R3-012409

|                                  |       |  | Cł  | IANG   | E RI               | EQ               | UE                 | ST             |   |   |  | CR-Form-v3 |
|----------------------------------|-------|--|---|--|--------------------|------------------|--------------------|----------------|---|---|--|------------|
| ж                                | 25    | <mark>.401</mark>  | CR  | 035  | ж                  | rev              | -                  | ж              | Current vers  | sion:   | 3.7.0  | ж          |
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| Clauses affected:                | ж     | 7.2.4.   | 8.1, 7.2.4  | .8.3, 7.2.4  | .8.4               |                  |                    |                |   |   |  |            |
| Other specs<br>affected:         | ж     | Te   | ther core<br>est specif<br>&M Speci                                     |  | ons                | ж                |                    |                | /4.1.0 CR 03/<br>/5.0.0 CR 03   |   |  |            |
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This function is located in both the UTRAN and the UE.

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Other comments:

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#### CR page 1

# Tdoc R3-012707

| 3GPP TSG-RAN WG3 Meeting #23         |
|--------------------------------------|
| Helsinki, Finland, 27-31 August 2001 |

|                               |                     |   |   |  |  |   |                           |  |  |                            | CR-Form-v4          |
|-------------------------------|---------------------|---|---|--|--|---|---------------------------|--|--|----------------------------|---------------------|
|                               |                     |   | CHAN  | IGE R  | EQ   | UES   | ST                        |  |  |                            |                     |
| æ                             | 25                  | 5.401   | CR <mark>036</mark>   | ж  | rev  | 2   | ж (                       | Current vers   | sion:  | 3.7.0                      | ж                   |
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| Title:                        | <mark>អ Cl</mark> a | arificati   | on of coordinat   | ed DCHs  |  |   |                           |  |  |                            |                     |
| Source:                       | <mark>ដ R-</mark>   | WG3   |   |  |  |   |                           |  |  |                            |                     |
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| Reason for cha                | •                   | as it is  | suggested in TS   | 25.427 cl  |  |   |                           |  |  |                            |                     |
| Summary of ch                 |                     | R1: Ao<br>R0: Th<br>that al<br>This cl<br><u>Isolate</u><br>« Corr<br>explici<br>impler | ddition of TTI at<br>the modification of<br>the DCHs shall<br>hange is an "Isol<br><u>d Impact Analys</u><br>ection to a funct<br>it. Would not aff<br>nentations suppo | obreviation<br>consists in<br>have the s<br>ated Impace<br>ion where<br>ect implen<br>orting the c | adding<br>ame T<br>ct" cha<br>the spe<br>pentatic<br>orrecte | TI.<br>nge.<br>ecificat<br>ons bei<br>ed func | tion w<br>havin<br>ctiona | vas ambiguou<br>g like indicat<br>lity otherwise                                   | is or n<br>red in<br>e. »                          | ot sufficies<br>the CR, wo | ntly<br>ould affect |
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Iub: Interface between the RNC and the Node B.

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**Set of co-ordinated DCHs:** A set of co-ordinated DCHs is a set of dedicated transport channels that are always established and released in combination. Individual DCHs within a set of co-ordinated DCHs cannot be operated on individually e.g. if the establishment of one DCH fails, the establishment of all other DCHs in the set of co-ordinated DCHs shall be terminated unsuccessfully. A set of coordinated DCHs is transferred over one transport bearer. <u>All DCHs in a set of co-ordinated DCHs shall have the same TTI.</u>

# 3.2 Abbreviations

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| ALCAP<br>BM-IWF<br>BMC<br>BSS<br>CBC<br>CBS<br>CN<br>CPCH<br>CRNC<br>DCH<br>DL<br>DRNS<br>FACH<br>FFS<br>GTP<br>MAC<br>NAS<br>NBAP<br>DCU | Access Link Control Application Part<br>Broadcast Multicast Interworking Function<br>Broadcast/Multicast Control<br>Base Station Subsystem<br>Cell Broadcast Centre<br>Cell Broadcast Service<br>Core Network<br>Common Packet Channel<br>Controlling Radio Network Controller<br>Dedicated Channel<br>Downlink<br>Drift RNS<br>Forward Access Channel<br>For Further Study<br>GPRS Tunnelling Protocol<br>Medium Access Control<br>Non Access Stratum<br>Node B Application Part |
|---|---|
| MAC   | Medium Access Control   |
| NBAP<br>PCH   | Node B Application Part<br>Paging Channel   |
| QoS<br>RAB<br>RACH<br>RANAP   | Quality of Service<br>Radio Access Bearer<br>Random Access Channel<br>Radio Access Network Application Part   |
|   | ~ ~   |

| RNC   | Radio Network Controller                   |
|-------|--|
| RNS   | Radio Network Subsystem                    |
| RNSAP | Radio Network Subsystem Application Part   |
| RNTI  | Radio Network Temporary Identity           |
| SAB   | Service Area Broadcast                     |
| SRNC  | Serving Radio Network Controller           |
| SRNS  | Serving RNS                                |
| TEID  | Tunnel Endpoint Identifier                 |
| TTI   | Transmission Time Interval                 |
| UE    | User Equipment                             |
| UL    | Uplink                                     |
| UMTS  | Universal Mobile Telecommunication System  |
| USIM  | UMTS Subscriber Identity Module            |
| UTRAN | Universal Terrestrial Radio Access Network |

#### CR page 1

# Tdoc R3-012708

| 3GPP TSG-RAN WG3 Meeting #23         |
|--------------------------------------|
| Helsinki, Finland, 27-31 August 2001 |

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| <b>Consequences if</b><br><b>not approved: %</b> It could be possible to assign different TTI values to DCHs in a set of coordinated DCHs,<br>which is in contradiction with TS 25.427.<br>Furthermore, the way different TTIs are treated is not specified and several possibilities<br>exist. |              |  |  |  |                                       |                 |                  |                  |                |   |   |   |                 |
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Test specifications O&M Specifications

affected:

Other comments:

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**Standalone A-GPS SMLC**: A logical node that interconnects to the RNC over the Iupc interface via the PCAP protocol. This node provides GPS related data to the RNC and may perform the position calculation function.

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| ALCAP<br>BM-IWF<br>BMC<br>BSS | Access Link Control Application Part<br>Broadcast Multicast Interworking Function<br>Broadcast/Multicast Control<br>Base Station Subsystem |
|-------------------------------|--|
| CBC                           | Cell Broadcast Centre  |
| CBS                           | Cell Broadcast Service   |
| CN                            | Core Network   |
| CPCH                          | Common Packet Channel  |
| CRNC                          | Controlling Radio Network Controller   |
| DCH                           | Dedicated Channel  |
| DL                            | Downlink   |
| DRNS                          | Drift RNS  |
| FACH                          | Forward Access Channel   |
| FFS                           | For Further Study  |
| GTP                           | GPRS Tunnelling Protocol   |
| MAC                           | Medium Access Control  |
| NAS                           | Non Access Stratum   |
| NBAP                          | Node B Application Part  |
| PCH                           | Paging Channel   |
| QoS                           | Quality of Service   |
| RAB                           | Radio Access Bearer  |
| RACH                          | Random Access Channel  |
| RANAP                         | Radio Access Network Application Part  |

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|-------|--|
| RNS   | Radio Network Subsystem                    |
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| SAB   | Service Area Broadcast                     |
| SAS   | Standalone A-GPS SMLC                      |
| SMLC  | Serving Mobile Location Centre             |
| SRNC  | Serving Radio Network Controller           |
| SRNS  | Serving RNS                                |
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| TTI   | Transmission Time Interval                 |
| UE    | User Equipment                             |
| UL    | Uplink                                     |
| UMTS  | Universal Mobile Telecommunication System  |
| USIM  | UMTS Subscriber Identity Module            |
| UTRAN | Universal Terrestrial Radio Access Network |
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Other comments:

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#### CR page 1

# Tdoc R3-012709

| 3GPP TSG-RAN WG3 Meeting #23         |
|--------------------------------------|
| Helsinki, Finland, 27-31 August 2001 |

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| Clauses affected:                | ж                | 3.1,   | 3.2   |  |  |  |  |               |  |   |   |                     |                   |       |
| Other specs                      | ж                |  | Other core s  |  | ns   | X  | CR<br>v4.1                                   | 528,<br>1.0 C | v 3.6.0 CF<br>25.423 v<br>CR475, 25<br>v4.1.0 CR | 3.6.0<br>5.401                                    | CR  | 474, 25             | 5.423             |       |
| affected:                        |                  |  | est specifie  |  |  |  |  |               |  |   |   |                     |                   |       |

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**Radio Network Subsystem**: An RNS can be either a full UTRAN or only a part of a UTRAN. An RNS offers the allocation and release of specific radio resources to establish means of connection in between an UE and the UTRAN. A Radio Network Subsystem contains one RNC and is responsible for the resources and transmission/reception in a set of cells.

**Serving RNS**: A role an RNS can take with respect to a specific connection between an UE and UTRAN. There is one Serving RNS for each UE that has a connection to UTRAN. The Serving RNS is in charge of the radio connection between a UE and the UTRAN. The Serving RNS terminates the Iu for this UE.

**Drift RNS**: The role an RNS can take with respect to a specific connection between an UE and UTRAN. An RNS that supports the Serving RNS with radio resources when the connection between the UTRAN and the UE need to use cell(s) controlled by this RNS is referred to as Drift RNS.

Radio Access Network Application Part: Radio Network Signalling over the Iu.

Radio Network Subsystem Application Part: Radio Network Signalling over the Iur.

**RRC Connection**: A point-to-point bi-directional connection between RRC peer entities on the UE and the UTRAN sides, respectively. An UE has either zero or one RRC connection.

**Standalone A-GPS SMLC**: A logical node that interconnects to the RNC over the Iupc interface via the PCAP protocol. This node provides GPS related data to the RNC and may perform the position calculation function.

**User Equipment**: A Mobile Equipment with one or several UMTS Subscriber Identity Module(s). A device allowing a user access to network services via the Uu interface. The UE is defined in ref. [8].

**Universal Terrestrial Radio Access Network**: UTRAN is a conceptual term identifying that part of the network which consists of RNCs and Node Bs between Iu an Uu. The concept of UTRAN instantiation is currently undefined.

**UTRAN Access Point**: A conceptual point within the UTRAN performing radio transmission and reception. A UTRAN access point is associated with one specific *cell*, i.e. there exists one UTRAN access point for each cell. It is the UTRAN-side end point of a *radio link*.

**Radio Link**: A "radio link" is a logical association between a single User Equipment and a single UTRAN access point. Its physical realisation comprises one or more radio bearer transmissions.

**Radio Link Set**: A set of one or more Radio Links that has a common generation of Transmit Power Control (TPC) commands in the DL.

Uu: The Radio interface between UTRAN and the User Equipment.

**RAB sub-flows**: A Radio Access Bearer can be realised by UTRAN through several sub-flows. These sub-flows correspond to the NAS service data streams that have QoS characteristics that differ in a predefined manner within a RAB e.g. different reliability classes.

RAB sub-flows have the following characteristics:

- 1) The sub-flows of a RAB are established and released at the RAB establishment and release, respectively.
- 2) The sub-flows of a RAB are submitted and delivered together at the RAB SAP.
- 3) The sub-flows of a RAB are carried over the same Iu transport bearer.
- 4) The sub-flows of a RAB are organised in a predefined manner at the SAP and over the Iu interface. The organisation is imposed by the NAS as part of its co-ordination responsibility.

**Set of co-ordinated DCHs: A set of co**-ordinated DCHs is a set of dedicated transport channels that are always established and released in combination. Individual DCHs within a set of co-ordinated DCHs cannot be operated on individually e.g. if the establishment of one DCH fails, the establishment of all other DCHs in the set of co-ordinated DCHs shall be terminated unsuccessfully. A set of coordinated DCHs is transferred over one transport bearer. <u>All DCHs in a set of co-ordinated DCHs shall have the same TTL</u>.

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| ALCAP<br>BM-IWF<br>BMC<br>BSS<br>CBC<br>CBS<br>CN<br>CPCH<br>CRNC | Access Link Control Application Part<br>Broadcast Multicast Interworking Function<br>Broadcast/Multicast Control<br>Base Station Subsystem<br>Cell Broadcast Centre<br>Cell Broadcast Service<br>Core Network<br>Common Packet Channel<br>Controlling Radio Network Controller |
|---|--|
| DCH<br>DL   | Dedicated Channel<br>Downlink  |
| DL<br>DRNS  | Drift RNS  |
| FACH  | Forward Access Channel   |
| FFS   |  |
| ~   | For Further Study  |
| GTP   | GPRS Tunnelling Protocol   |
| MAC   | Medium Access Control  |
| NAS   | Non Access Stratum   |
| NBAP  | Node B Application Part  |
| PCH   | Paging Channel   |
| QoS   | Quality of Service   |
| RAB   | Radio Access Bearer  |
| RACH  | Random Access Channel  |
| RANAP   | Radio Access Network Application Part  |

| RNC   | Radio Network Controller                   |
|-------|--|
| RNS   | Radio Network Subsystem                    |
| RNSAP | Radio Network Subsystem Application Part   |
| RNTI  | Radio Network Temporary Identity           |
| SAB   | Service Area Broadcast                     |
| SAS   | Standalone A-GPS SMLC                      |
| SMLC  | Serving Mobile Location Centre             |
| SRNC  | Serving Radio Network Controller           |
| SRNS  | Serving RNS                                |
| TEID  | Tunnel Endpoint Identifier                 |
| TTI   | Transmission Time Interval                 |
| UE    | User Equipment                             |
| UL    | Uplink                                     |
| UMTS  | Universal Mobile Telecommunication System  |
| USIM  | UMTS Subscriber Identity Module            |
| UTRAN | Universal Terrestrial Radio Access Network |