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Technical Specification

**Universal Mobile Telecommunications System (UMTS);
UTRAN Iur and Iub Interface Data Transport;
Transport Signalling for DCH Data Streams
(3G TS 25.426 version 3.3.0 Release 1999)**



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Foreword

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1 Scope

The present document specifies the transport bearers for the DCH data streams on UTRAN Iur and Iub interfaces. The corresponding Transport Network Control plane is also specified. The physical layer for the transport bearers is outside the scope of the present document.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
 - For a specific reference, subsequent revisions do not apply.
 - For a non-specific reference, the latest version applies.
- [1] TS UMTS 25.427: "UTRAN Iur and Iub User plane Protocol for DCH Data Streams".
 - [2] ITU-T Recommendation I.361 (1995): "B-ISDN ATM Layer Specification".
 - [3] ITU-T Recommendation I.363.2 (1997): "B-ISDN ATM Adaptation Layer type 2".
 - [4] ITU-T Recommendation I.366.1 (1998): "Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL type 2".
 - [5] Draft new ITU-T Recommendation Q.2630.1: "AAL Type 2 signalling protocol (Capability Set 1)".
 - [6] ITU-T Recommendation E.191 (1996): "B-ISDN numbering and addressing".
 - [7] ITU-T Recommendation X.213 (1995): "Information Technology - Open Systems Interconnection - Network Service Definition".
 - [8] ITU-T Recommendation Q.2110 (1994): "B-ISDN ATM Adaptation layer - Service Specific Connection Oriented Protocol (SSCOP)".
 - [9] ITU-T Recommendation Q.2130 (1994): "B-ISDN Signaling ATM Adaptation Layer - Service Specific Coordination Function for Support of Signaling at the User Network Interface (SSCF at UNI)".
 - [10] Draft new ITU-T Recommendation Q.2150.2: "AAL Type 2 Signalling Transport Converter on SSCOP".
 - [11] ITU-T Recommendation Q.2210 (1996): Message transfer part level 3 functions and messages using the services of the ITU-T Recommendation Q.2140".
 - [12] ITU-T Recommendation Q.2140 (1995): "B-ISDN Signaling ATM Adaptation Layer - Service Specific Coordination Function for Support of Signaling at the Network Node Interface (SSCF at NNI)".
 - [13] Draft new ITU-T Recommendation Q.2150.1: "AAL Type 2 Signalling Transport Converter on MTP-3B".
 - [14] IETF RFC 791 (1981): "Internet Protocol".
 - [15] IETF RFC 1483 (1993): "Multiprotocol Encapsulation over ATM Adaptation Layer 5".
 - [16] IETF RFC 2225 (1998): "Classical IP and ARP over ATM".
 - [17] IETF RFC 768 (1980): "User Datagram Protocol".

- [18] R. Stewart et al, "Stream Control Transmission Protocol", draft-ietf-sigtran-sctp-v9.txt (IESG Last Call Version), IETF, 19 April 2000.
- [19] G. Sidebottom et al, "SS7 MTP3 - User Adaptation Layer", draft-ietf-sigtran-m3ua-02.txt (Work In Progress), IETF, 10 March 2000.
- [20] ITU-T Recommendation I.630 (1999): "ATM Protection Switching".

3 Definitions and abbreviations

3.1 Definitions

ALCAP is a generic name for the transport signalling protocol used to setup and tear down transport bearers.

3.2 Abbreviations

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

AAL2	ATM Adaptation Layer type 2
AESA	ATM End System Address
ATM	Asynchronous Transfer Mode
CPCS	Common Part Convergence Sublayer
CPS	Common Part Sublayer
DCH	Dedicated Channel
M3UA	SS7 MTP3 User Adaptation Layer
MTP	Message Transfer Part
NNI	Network-Node Interface
NSAP	Network Service Access Point
SAAL	Signalling ATM Adaptation Layer
SAR	Segmentation and Reassembly
SCTP	Simple Control Transmission Protocol
SSCF	Service Specific Co-ordination Function
SSCOP	Service Specific Connection Oriented Protocol
SSCS	Service Specific Convergence Sublayer
SSSAR	Service Specific Segmentation and Reassembly sublayer
STC	Signalling Transport Converter
UNI	User-Network Interface

4 ATM Layer

4.1 General

ATM shall be used in the transport network user plane and transport network control plane according to I.361 [2].

4.2 Protection Switching at ATM Layer

If redundancy of pathways at ATM Layer between RNC and Node B is supported, it shall be implemented using ATM Protection Switching according to I.630 [20].

5 I_{ur} and I_{ub} Data Transport for DCH Data Streams

5.1 Introduction

The Frame Protocol for DCH data streams [1] is the user of the transport layer specified in this Technical Specification.

5.2 Transport Layer

Asynchronous Transfer Mode (ATM) [2] and ATM Adaptation Layer type 2 (AAL2) [3, 4] are used as a transport layer for DCH data streams on I_{ur} and I_{ub} interfaces. Service Specific Segmentation and Reassembly (SSSAR) sublayer for AAL2 is used for the segmentation and reassembly of AAL2 SDUs.

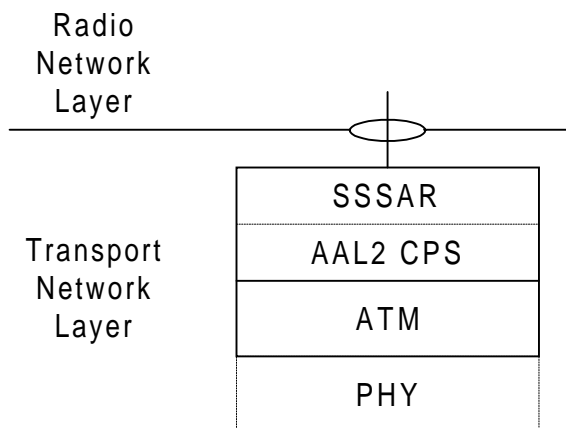


Figure 1: Transport network layer for DCH data streams over I_{ur} and I_{ub} interfaces

6 Transport Signalling Application for DCH Data Streams

6.1 ALCAP

AAL2 signalling protocol Capability Set 1 [5] is the signalling protocol to control AAL2 connections on I_{ub} and I_{ur} interfaces.

Binding ID provided by the radio network layer shall be copied in SUGR parameter of ESTABLISH.request primitive of [5].

User Plane Transport bearers for I_{ur} interface are established and released by the ALCAP in the Serving RNC. The binding identity shall already be assigned and tied to a radio application procedure when the first ALCAP message is received over the I_{ur} interface in the Drift RNC.

User Plane Transport bearers for I_{ub} interface are established and released by the ALCAP in the Controlling RNC.

AAL2 transport layer addressing is based on embedded E.164 or AESA variants of the NSAP addressing format [6, 7]. Native E.164 addressing shall not be used.

7 Signalling Bearer for ALCAP on I_{ub} Interface

7.1 Introduction

This clause specifies the signalling bearer for the ALCAP on I_{ub} interface. Signalling bearer is used for the conveyance of the ALCAP messages between the peer UTRAN nodes.

7.2 Signalling Bearer

SAAL-UNI [8, 9] is used as a signalling bearer for the AAL Type 2 Signalling protocol on I_{ub} interface. Signalling Transport Converter for SSCOP is applied [9]. The following figure shows the signalling bearer protocol stack for the ALCAP on I_{ub} interface.

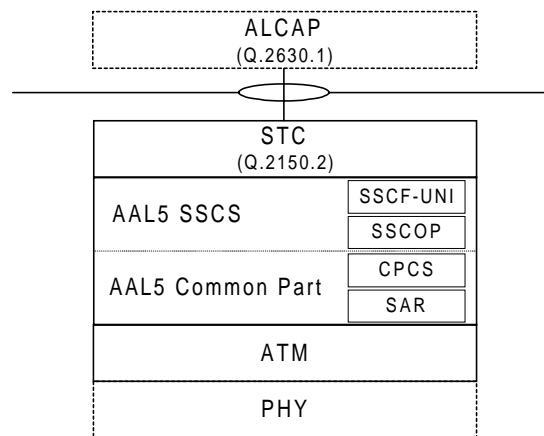


Figure 2: Signalling bearer for ALCAP on I_{ub} interface

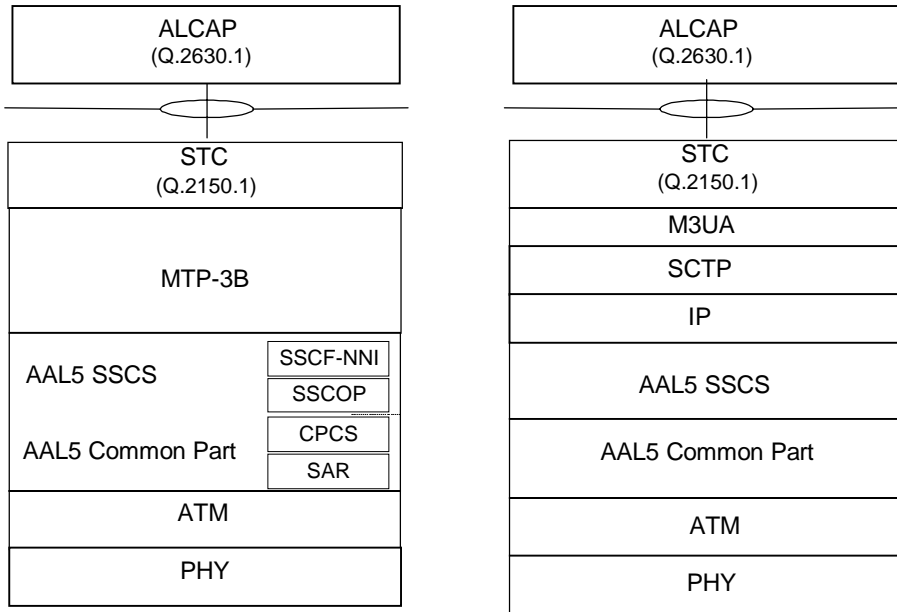
8 Signalling Bearer for ALCAP on I_{ur} Interface

8.1 Introduction

This clause specifies the signalling bearer for the ALCAP on the I_{ur} interface. Signalling bearer is used for the conveyance of the ALCAP messages between the peer UTRAN nodes.

8.2 Signalling Bearer

There are two protocol stacks specified for I_{ur} ALCAP Signalling Bearer - one based on MTP-3B [11] and SAAL-NNI [12, 8] and the other based on SCTP [18]. Signalling Transport Converter for MTP-3B is applied [13]. SCCP Adaptation Layer for SCTP is applied [19]. The following figure shows the signalling bearer protocol stacks for the ALCAP on I_{ur} interface.



MTP-3B based Iur ALCAP Signaling Bearer

IP based Iur ALCAP Signaling Bearer

Figure 3: Signalling bearers for ALCAP on Iur interface

Annex A (informative): Change History

Change history					
TSG RAN#	Version	CR	Tdoc RAN	New Version	Subject/Comment
RAN_04	-	-	-	3.0.0	Approved at TSG RAN #4 by correspondence and placed under Change Control
RAN_05	3.0.0	-	-	3.1.0	Approved at TSG RAN #5
RAN_07	3.1.0	-	-	3.2.0	Approved at TSG RAN #7
RAN_08	3.2.0	-	RP-000247	3.3.0	Approved at TSG RAN #8
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