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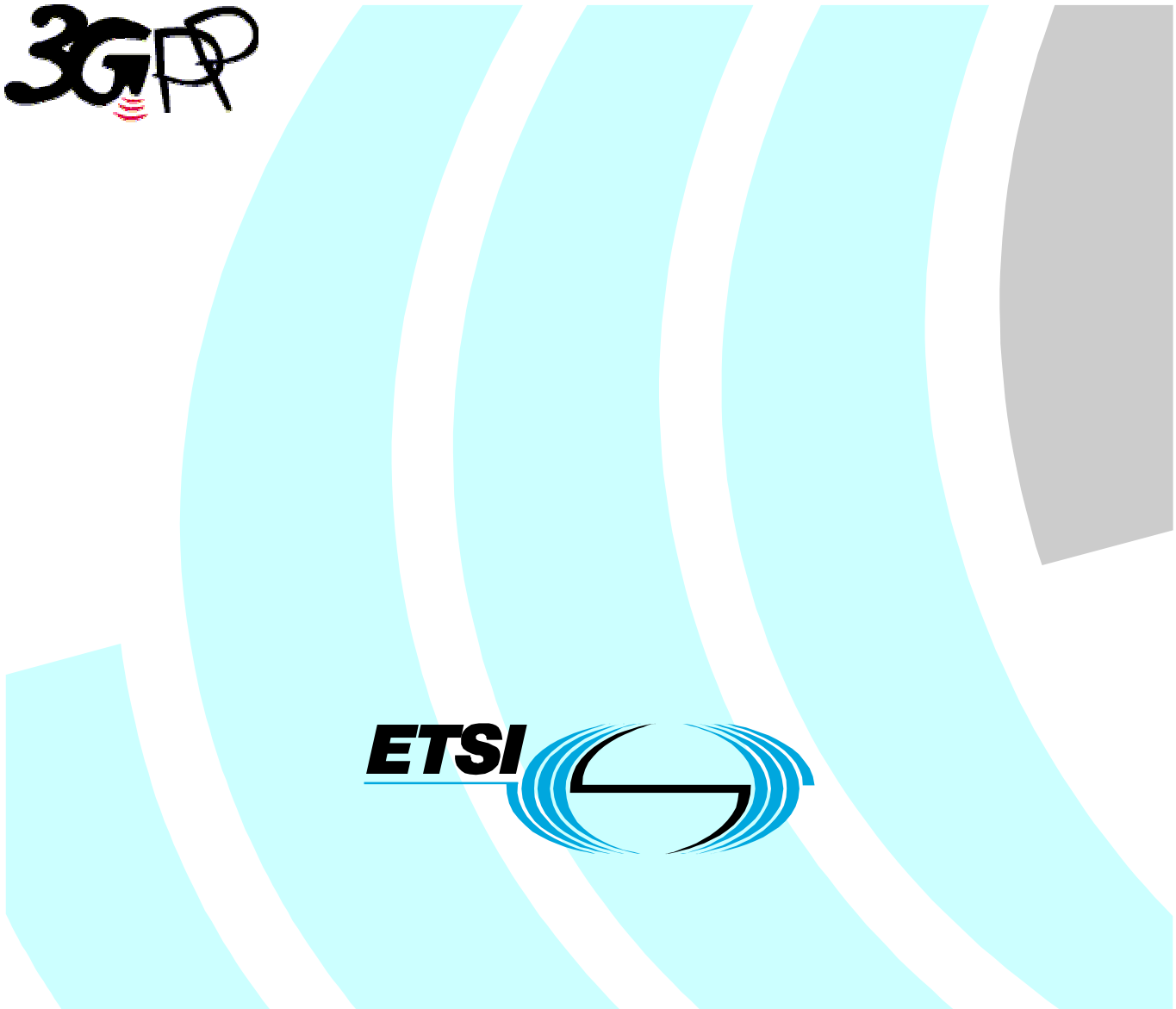
Technical Specification

Universal Mobile Telecommunications System (UMTS);
UTRAN Iur and Iub Interface Data Transport;
Transport Signalling for DCH Data Streams
(3GPP TS 25.426 version 3.7.0 Release 1999)



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Foreword

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Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] TS UMTS 25.427: "UTRAN Iur and Iub User plane Protocol for DCH Data Streams".

[2] ITU-T Recommendation I.361 (11/95): "B-ISDN ATM Layer Specification".

[3] ITU-T Recommendation I.363.2 (9/97): "B-ISDN ATM Adaptation Layer type 2".

[4] ITU-T Recommendation I.366.1 (6/98): "Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL type 2".

[5] ITU-T Recommendation Q.2630.1 (12/99): "AAL type 2 Signalling Protocol (Capability Set 1)".

[6] ITU-T Recommendation E.191 (10/96): "B-ISDN numbering and addressing".

[7] ITU-T Recommendation X.213 (11/95): "Information Technology - Open Systems Interconnection - Network Service Definition".

[8] ITU-T Recommendation Q.2110 (7/94): "B-ISDN ATM Adaptation layer - Service Specific Connection Oriented Protocol (SSCOP".

[9] ITU-T Recommendation Q.2130 (7/94): "B-ISDN Signalling ATM Adaptation Layer - Service Specific Coordination Function for Support of Signalling at the User Network Interface (SSCF at UNI".

[10] ITU-T Recommendation Q.2150.2 (12/99): "AAL type 2 signalling transport converter on SSCOP".

[11] ITU-T Recommendation Q.2210 (7/96): Message transfer part level 3 functions and messages using the services of the ITU-T Recommendation Q.2140".

[12] ITU-T Recommendation Q.2140 (2/95): "B-ISDN Signalling ATM Adaptation Layer - Service Specific Coordination Function for Support of Signalling at the Network Node Interface (SSCF at NNI)".

[13] New ITU-T Recommendation Q.2150.1 (12/99): "AAL Type 2 Signalling Transport Converter on MTP-3B".

[14] IETF RFC 791 (September 1981): "Internet Protocol".

[15] IETF RFC 1483 (July 1993): "Multiprotocol Encapsulation over ATM Adaptation Layer 5".

[16] IETF RFC 2225 (April 1998): "Classical IP and ARP over ATM".

[17] IETF RFC 768 (August 1980): "User Datagram Protocol".

[18] IETF RFC 2960 (October 2000): "Stream Control Transmission Protocol".

[19] G. Sidebottom et al, "SS7 MTP3 - User Adaptation Layer", draft-ietf-sigtran-m3ua-04.txt (Work In Progress), IETF, September 2000.

[20] ITU-T Recommendation I.630 (2/99): "ATM Protection Switching".

[21] ITU-T Implementor's guide (12/99) for recommendation Q.2210 (07/96).

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	Stream 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 Iur and Iub interfaces. Service Specific Segmentation and Reassembly (SSSAR) sublayer for AAL2 is used for the segmentation and reassembly of AAL2 SDUs.

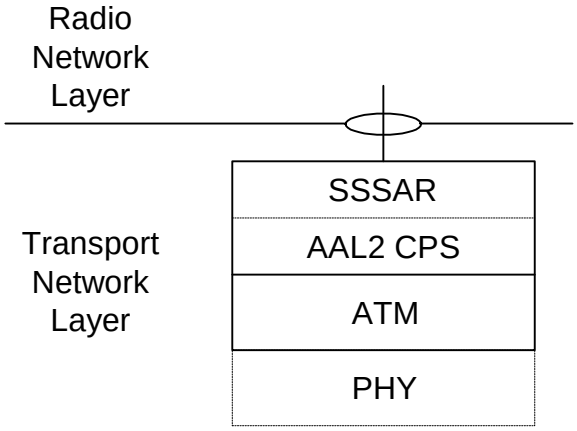


Figure 1: Transport network layer for DCH data streams over Iur and Iub interfaces

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 Iub and Iur 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 Iur interface are established and released by the ALCAP in the Serving RNC. The binding identifier shall already be assigned and tied to a radio application procedure when the first ALCAP message is received over the Iur interface in the Drift RNC.

User Plane Transport bearers for Iub 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.

The AAL2 Link Characteristics parameter (ALC) shall be included in the Establish Request message of AAL2 signalling protocol.

7 Signalling Bearer for ALCAP on I_{ub} Interface

7.1 Introduction

This clause specifies the signalling bearer for the ALCAP on Iub interface.

7.2 Signalling Bearer

SAAL-UNI [8, 9] is used as a signalling bearer for the AAL Type 2 Signalling protocol on Iub interface. Signalling Transport Converter for SSCOP is applied [10]. The following figure shows the signalling bearer protocol stack for the ALCAP on Iub interface.

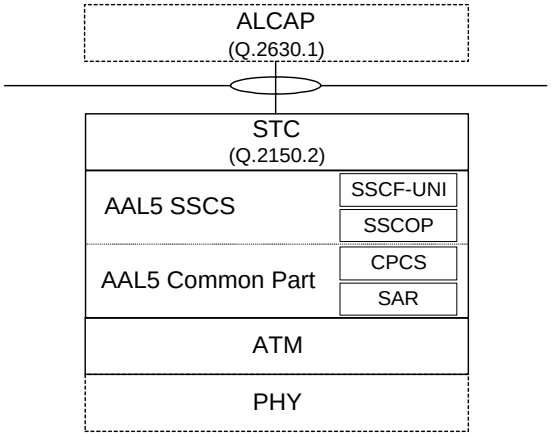


Figure 2: Signalling bearer for ALCAP on Iub interface

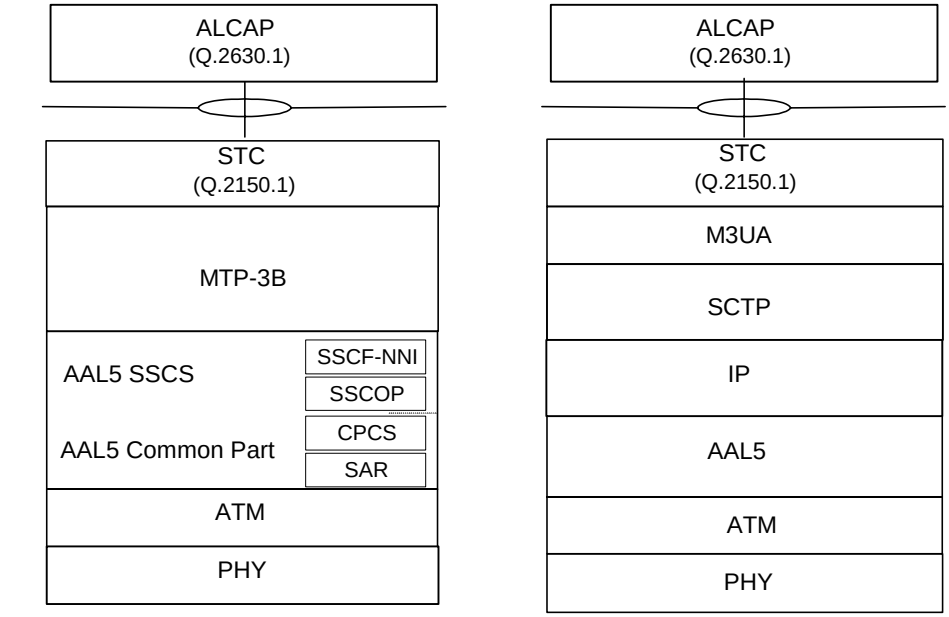
8 Signalling Bearer for ALCAP on I_{ur} Interface

8.1 Introduction

This clause specifies the signalling bearer for the ALCAP on the Iur interface.

8.2 Signalling Bearer

There are two protocol stacks specified for Iur ALCAP Signalling Bearer - one based on MTP-3B [11, 21] and SAAL-NNI [12, 8] and the other based on SCTP [18]. Signalling Transport Converter for MTP-3B is applied [13]. MTP-3 User Adaptation Layer (M3UA) for SCTP is applied [19]. Classical IP over ATM is specified in [16]. Multiprotocol Encapsulation over AAL5 is specified in [15]. The following figure shows the signalling bearer protocol stacks for the ALCAP on Iur interface.



MTP-3B based Iur ALCAP Signalling Bearer IP based Iur ALCAP Signalling 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
RAN_09	3.3.0	003 004 006	RP-000383	3.4.0	Approved at TSG RAN #9
RAN_10	3.4.0	007 008 009	RP-000624	3.5.0	Approved at TSG RAN #10
RAN_11	3.5.0	010 011	RP-010121	3.6.0	Approved at TSG RAN #11
RAN 14	3.6.0	014	RP-010859	3.7.0	Reference corrections
RAN 14	3.6.0	016	RP-010859	3.7.0	Correction to Figure 3

History

Document history		
V3.1.0	January 2000	Publication
V3.2.0	March 2000	Publication
V3.3.0	June 2000	Publication
V3.4.0	September 2000	Publication
V3.5.0	December 2000	Publication
V3.6.0	March 2001	Publication
V3.7.0	December 2001	Publication