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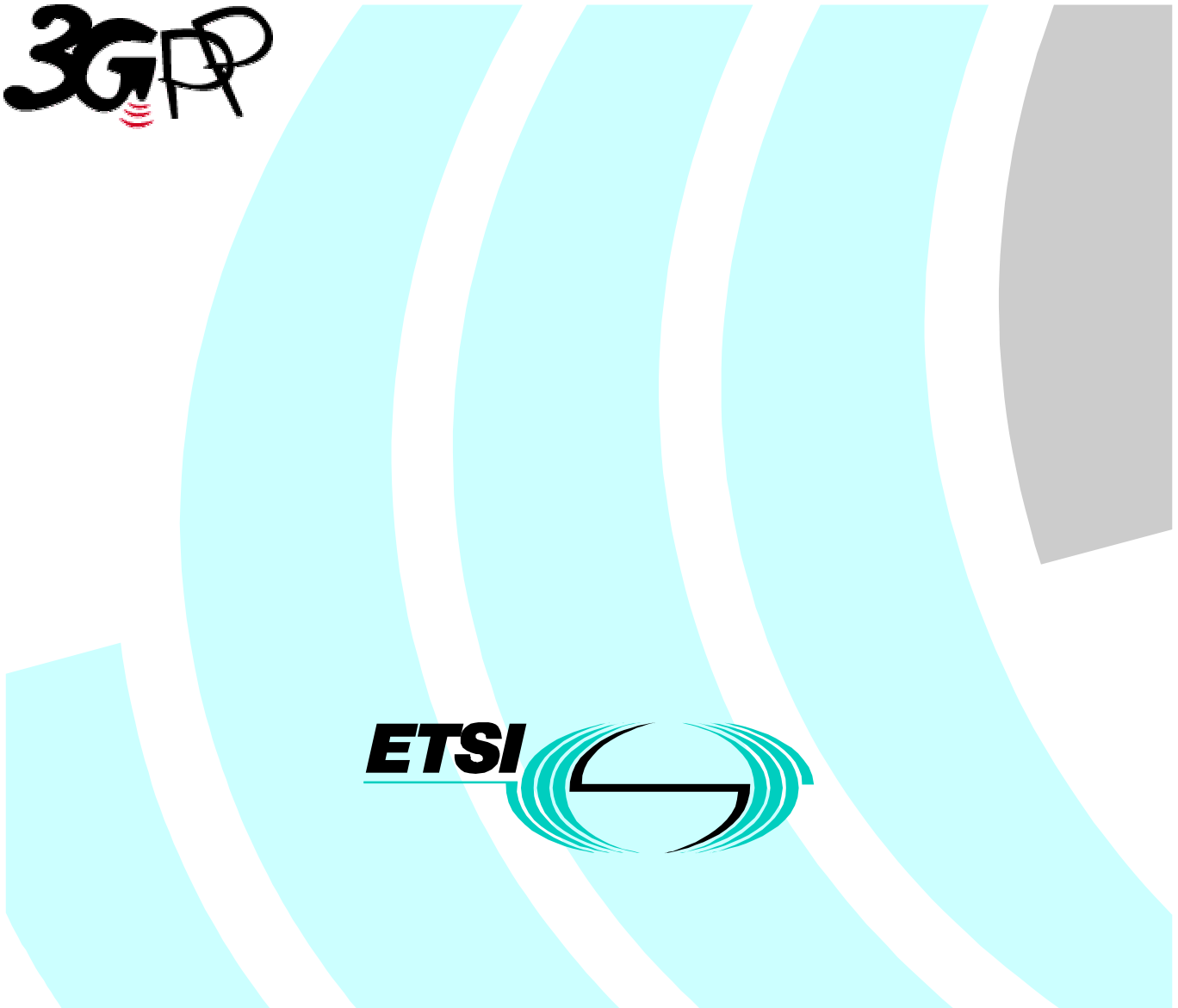
Technical Specification

Universal Mobile Telecommunications System (UMTS);
UTRAN Iur Interface Signalling Transport
(3G TS 25.422 version 3.3.0 Release 1999)



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Foreword

This Technical Specification (TS) has been produced by the ETSI 3rd Generation Partnership Project (3GPP).

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Contents

Foreword

This Technical Specification (TS) has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
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1 Scope

The present document specifies the standards for Signalling Transport to be used across Iur Interface. Iur Interface is a logical interface between the two RNC of the UMTS Terrestrial Radio Access Network (UTRAN) for the UMTS system. The present document describes how the RNSAP signalling messages are transported between the two RNCs.

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] ITU-T Recommendation Q.2100 (1994): "B-ISDN Signalling ATM Adaptation Layer (SAAL) - overview description".

[2] ITU-T Recommendation Q.2110 (1994): "B-ISDN ATM adaptation layer - Service Specific Connection Oriented Protocol (SSCOP)".

[3] ITU-T Recommendation Q.2140 (1995): "B-ISDN ATM adaptation layer - Service Specific Co-ordination Function for signalling at the Network Node Interface (SSCF AT NNI)".

[4] ITU-T Recommendation Q.2210 (1996): "Message transfer part level 3 functions and messages using the services of ITU-T Recommendation Q.2140".

[5] ITU-T Recommendation I.361 (1995): "B-ISDN ATM layer specification".

[6] ITU-T Recommendation I.363.5 (1996): "B-ISDN ATM Adaptation Layer Type 5".

[7] ITU-T Recommendation Q.711 (1996): "Functional description of the signalling connection control part".

[8] ITU-T Recommendation Q.712 (1996): "Definition and function of Signalling connection control part messages".

[9] ITU-T Recommendation Q.713 (1996): Signalling connection control part formats and codes.

[10] ITU-T Recommendation Q.714 (1996): "Signalling connection control part procedures".

[11] ITU-T Recommendation Q.715 (1996): "Signalling connection control part user guide".

[12] ITU-T Recommendation Q.716 (1993): "Signalling Connection Control Part (SCCP) performance".

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

[14] IETF RFC 1483 (1993): "Multi protocol Encapsulation over ATM Adaptation Layer 5".

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

[16] R. Stewart et al, "Simple Control Transmission Protocol", draft-ieft-sigtran-sctp-v6.txt (IESG Last Call Version), IETF, February 2000.

[17] G. Sidebottom et al, "SS7 MTP3 - User Adaptation Layer", draft-ietf-sigtran-m3ua-01.txt (Work In Progress), IETF, February 2000.

3 Abbreviations

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

AAL	ATM Adaptation Layer
AAL5	ATM Adaptation Layer 5
ATM	Asynchronous Transfer Model
IP	Internet Protocol
ITUN	SS7 ISUP Tunnelling (Adaptation layer for ISUP and SCCP for SCTP)
MTP3-B	Message Transfer Part
PLMN	Public Land Mobil Network
RNC	Radio Network Controller
RNSAP	Radio Network Subsystem Application Part
SAAL-NNI	Signalling ATM Adaptation Layer - Network Node Interface
SCCP	Signalling Connection Control Part
SCTP	Simple Control Transmission Protocol
SSCF	Service Specific Co-ordination Function
SSCOP	Service Specific Connection Oriented Protocol
UE	User Equipment

4 ATM Layer

4.1 General

ATM shall be used in the radio network control plane according to I.361 [5].

5 RNSAP Signalling Bearer

5.1 Introduction

This subclause specifies the Signaling Bearer protocol stack that supports the RNSAP signaling protocol.

The following requirements on the RNSAP signalling bearer can be stated:

- provide reliable transfer of control plane signalling messages in both connectionless mode and connection-oriented mode;
- provide separate independent connections for distinguishing transactions with individual Ues;
- supervise the 'UE connections' and provide connection status information to the Upper Layers for individual Ues;
- provide networking and routing functions;
- provide redundancy in the signalling network;
- provide load sharing.

5.2 Signalling Bearer

This subclause refers to specifications of the Signalling Bearer for the Radio Network Layer protocols. As shown in figure 1, the standard allows operators to choose one out of two protocol to suites for transport of SCCP messages.

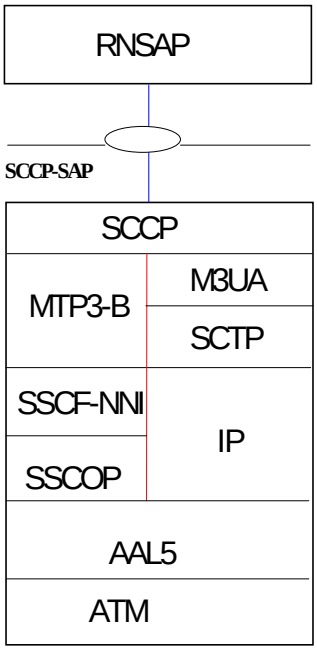

Figure 1: Signalling bearer for RNSAP

1. **SCCP** [7] provides connectionless service, class 0, connection oriented service, class 2, separation of the connections mobile by mobile basis on the connection oriented link and establishment of a connection oriented link mobile by mobile basis.

2. **MTP3-B** [4] provides message routing, discrimination and distribution (for point-to-point link only), signalling link management load sharing and changeover/back between link within one link-set. The need for multiple link-sets is precluded.

3. **SAAL-NNI** [1] consists of the following sub-layers: - **SSCF** [3], - **SSCOP** [2] and - **AAL5** [6]. The SSCF maps the requirements of the layer above to the requirements of SSCOP. Also SAAL connection management, link status and remote processor status mechanisms are provided. SSCOP provides mechanisms for the establishment and release of connections and the reliable exchange of signalling information between signalling entities. Adapts the upper layer protocol to the requirements of the Lower ATM cells.

4. **ATM** [5].

5. S**CTP** refers to the Simple Control Transmission Protocol [16] developed by the Sigtran working group of the IETF for the purposes of transporting various signalling protocols over IP networks. M3UA refers to the SCCP adaptation layer "SS7 MTP3 - User Adaptation Layer" [17] also developed by the Sigtran working group of the IETF.

6. **IP** [13] over ATM is defined in [14] and [15].

5.3 Services Provided by the Signalling Bearer

When considering the requirements that the upper layers, i.e. RNSAP, have on the Signalling Bearer, there are a number of services it has to provide and a number of functions to perform. These numbers of services that the signalling bearer shall provide, to the upper layers, are stated in the reference [7] to [12].

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 and placed under Change Control
RAN_05	3.0.0	-	-	3.1.0	Approved at TSG RAN #5
RAN_06	3.1.0	001	RP-99753	3.2.0	Approved at TSG RAN #6
RAN_07	3.2.0	-	-	3.3.0	Approved at TSG RAN #7

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History

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