**TSG-RAN Working Group 3 meeting #4**
**Warwick, UK, 1st – 4th June 1999**

*TSGR3#4(99)416*

**Agenda Item:** 8.1

**Source:** Editor (BT)

**Title:** 25.410 v0.1.1

**Document for:** Approval

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# TS ~~S3~~25.~~4~~10 V0.1.~~01~~ (1999-~~04~~05)

*Technical Specification*

**3rd Generation Partnership Project (3GPP);**
**Technical Specification Group (TSG) RAN;**

# UTRAN $I_u$ Interface: General Aspects and Principles

**UMTS <spec>**

3GPP

Reference

<Workitem> (<Shortfilename>.PDF)

Keywords

<keyword[, keyword]>

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# Intellectual Property Rights

# Foreword

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

The contents of this TS are subject to continuing work within 3GPP and may change following formal TSG approval. Should the TSG modify the contents of this TS, it will be re-released with an identifying change of release date and an increase in version number as follows:

Version m.t.e

where:

- m indicates [major version number]
- x the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- y the third digit is incremented when editorial only changes have been incorporated into the specification.

# Introduction

*This clause is optional. If it exists, it is always the third unnumbered clause.*

*No text block identified.*

# 1 Scope

The present document is an introduction to the TSG RAN S3.1x series of UMTS Technical Specifications that define the Iu interface for the interconnection of Radio Network Controller (RNC) component of the UMTS Terrestrial Radio Access Network (UTRAN) to the Core Network of the UMTS system.…

# 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.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] UMTS 25.4S3.01, UTRAN Overall Description
[2] UMTS 23.30, Iu Principles
[3] UMTS 23.10

# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

For the purposes of the present document, the [following] terms and definitions [given in ... and the following] apply.

## 3.2 Symbols

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

## 3.3 Abbreviations

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

# 4 General Aspects

***Editor's Note – Discussion is required about what information should be transferred from the UTRAN Architecture description to this document. Also, from other relevant documents (e.g. UMTS 23.30 Iu Principles).***

## 4.1 UTRAN Architecture

*Editor's Note – this chapter should describe enough of the system architecture for the role of the interface to be understood.*

See [1], chapter 8.1.

## 4.2 $I_u$ Interface General Principles

From a UTRAN perspective, maximising the commonality of the various protocols that flow on the Iu interface is desirable. This means at the minimum that :

- A common set of radio access bearer services will be offered by UTRAN to the Core Network nodes, regardless of their type (e.g. 3G-MSC or 3G-SGSN).

There will be a common functional split between UTRAN and the Core Network nodes, regardless of their type (e.g. 3G-MSC or 3G-SGSN).

Signalling in the radio network control plane shall not depend on the specific choice of transport layers.

## 4.3 $I_u$ Interface Specification Objectives

See [2], chapter 4.1.

## 4.4 $I_u$ Interface Capabilities

*[Editor´s note: This chapter should shortly describe the $I_u$ –Interface Capabilities. In order to avoid inconsistency between documents, reference to [2], chapters 4 and 5, has been made]*

See [2], chapters 4 and 5 4.2.

## 4.5 $I_u$ Interface Characteristics

See [2], chapters 4 and 5.

# 5 Functions of the $I_u$ Interface Protocols

*Editor's Note – this section will either contain a functional division across the interface, and/or a reference to the appropriate bit of the UTRAN Architecture Specification*

Congestion control shall be performed over the Iu user plane toward the IP domain using buffer management and no flow control.

# 6 $I_u$ Interface Protocol Structure

*Editor's Note – The protocol structure figures have not been altered yet, as this will be included in a combined editorial review of S3.10, S3.20, S3.30 and S3.01.*

## 6.1 General

The Radio Network signalling over Iu consists of the Radio Access Network Application Part (RANAP). The RANAP consists of mechanisms to handle all procedures between the CN and UTRAN. It is also capable of conveying messages transparently between the CN and the UE without interpretation or processing by the UTRAN.

Over the Iu interface the RANAP protocol is, e.g. used for:

- Facilitate a set of general UTRAN procedures from the Core Network such as paging -notification as defined by the notification SAP in [3].
- Separate each User Equipment (UE) on the protocol level for mobile specific signalling management as defined by the dedicated SAP in [3].

- Transfer of transparent non-access signalling as defined in the dedicated SAP in [3].
- Request of various types of UTRAN Radio Access Bearers through the dedicated SAP in [3].
- Perform the streamlining function.

The Radio Access Bearers are provided by the Access Stratum

## 6.2 Iu-CS

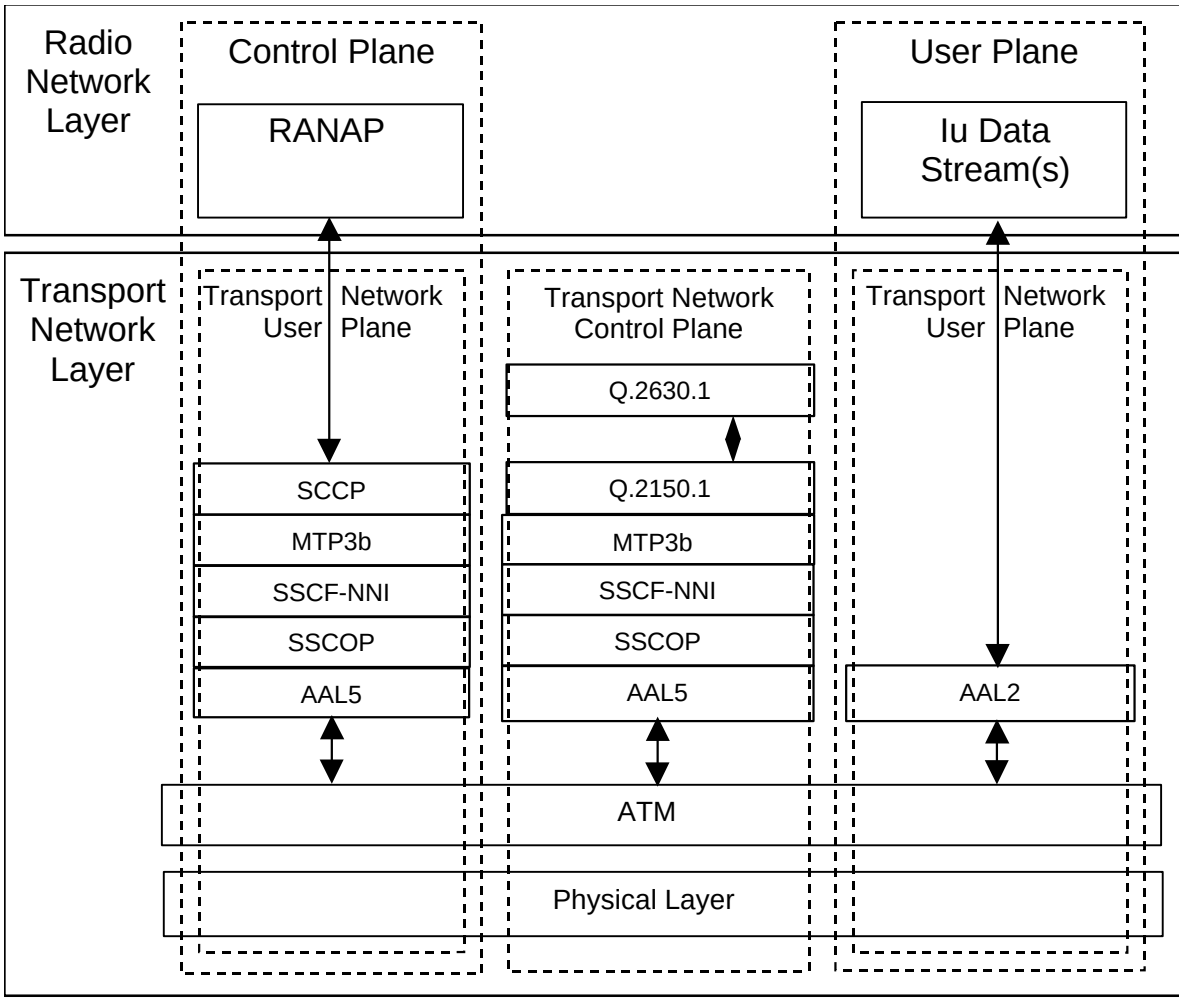



**Figure 1. $I_u$ Interface Protocol Structure towards CS Domain**

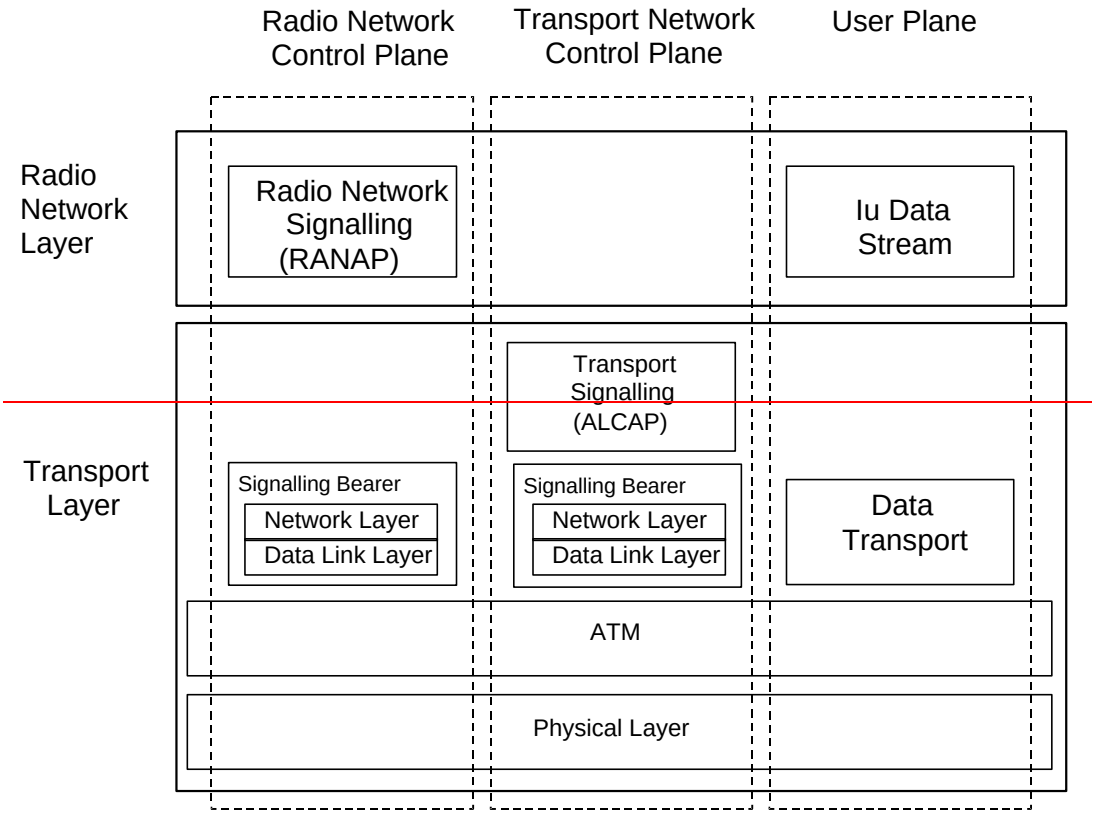
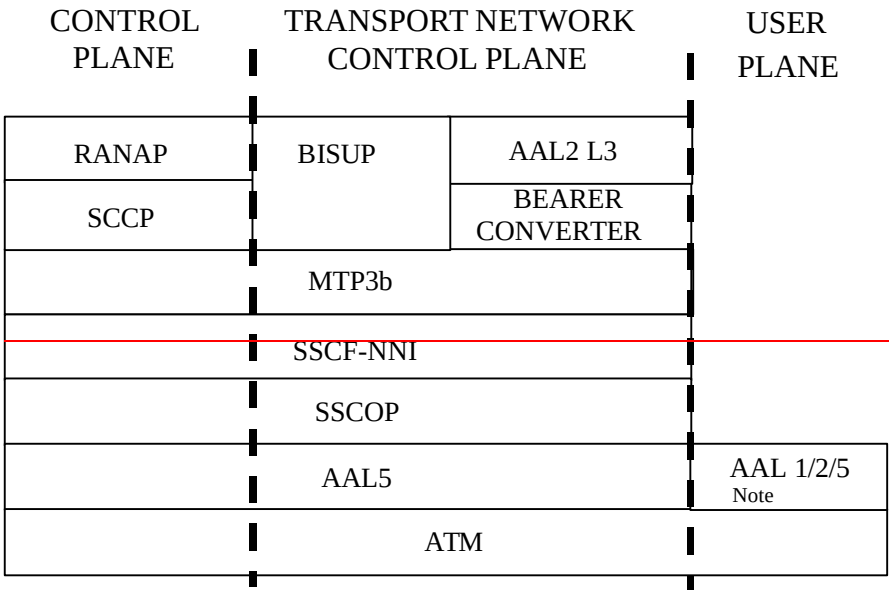



**Figure 221. $I_u$ Interface Protocol Structure**

*[Editor's note: Figure 1 is different in TTC/ARIB document (see below). TTC/ARIB has decided to use SS7 as a signalling bearer.* ***Study item 1: The use of SS7 as a signalling bearer.]*** .



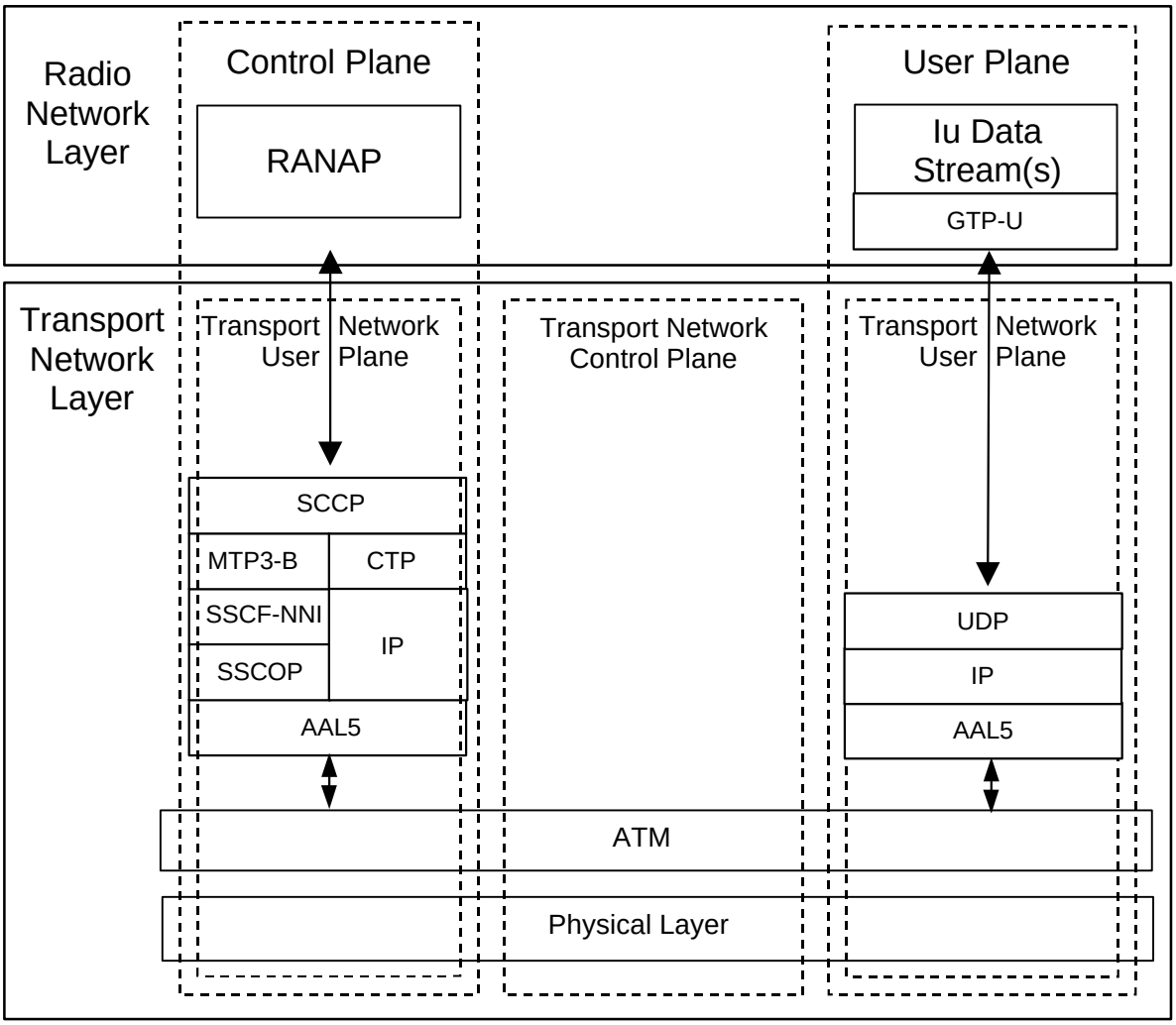

Note : AAL 1 is FFS

Figure 1. Iu Interface Protocol Structure

***Editor's note: Should the next sentence be in here or in S3.14?***

Q.aal2 is used as the ALCAP protocol for dynamically setup ALL-2 connections over Iu towards the PSTN Domain.

## 6.3 Iu-PS




# 7 Other $I_u$ Interface Specifications

## 7.1 UTRAN Iu Interface: Layer 1 (UMTS 25.411)

*editor's note – text is required, but can be completed once S3.11 has been created.*

## 7.2 UTRAN Iu Interface: Signalling Transport (UMTS 25.412)

UMTS 25.412 specifies the signalling bearers for the RANAP and ALCAP protocols for both Iu-PS and Iu-CS.

## 7.3 RANAP Specification (UMTS 25.413)

UMTS 25.413 specifies the RANAP protocol for radio network control plane signalling over the Iu interface.

## 7.4 UTRAN Iu Interface: Data Transport and Transport Signalling (UMTS 25.414)

UMTS 25.414 specifies the transport bearers for the user plane of the Iu interface. It also specifies the ALCAP protocol used to control these transport bearers.

## 7.5 UTRAN Iu Interface: CN-UTRAN User Plane Protocols (UMTS 25.415)

UMTS 25.415 specifies the user plane frame handling protocols for the Iu interface.

# 89 Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

# Annex A (Informative) – Stability Information

This annex details the stability of each section of the document, and notes areas where further text is required.

1 Stable

2 Will need references adding for other 25.41x documents

3 empty – should at least refer to 25.401, and the vocabulary document

4.1 Need to decide whether to include any information here to make it stand-alone

4.2 Current contents are stable, but more needed?

4.3 only a reference to UMTS 23.10.

4.4 as 4.3

4.5 EMPTY – Contributions required.

5 NEARLY EMPTY – Contributions (or references to 25.401) required.

6.1 Stable, but more needed?

6.2 Stable – any descriptions needed?

6.3 Now stable – any descriptions needed?

7 Needs text for 7.1, otherwise stable.

# 910 History

| Document history | | |
|---|---|---|
| v 0.0.1 | 1999-02 | Initial Specification Structure |
| V0.0.2 | 1999-02 | Text from merged document included. |
| V0.0.3 | 1999-03 | Updated with decision from WG3 #2 (inclusion of IP domain congestion control) |
| V0.1.0 | 1999-04 | Approved by WG3 |
| v.0.1.1 | 1999-05 | Updated with decisions from WG3 #3 – mostly from Tdoc 344. References and Ch7 updated according to document renumbering. |
| | | |

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This document is written in Microsoft Word version 7/97.