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Agenda Item: 17

Source: Mannesmann Mobilfunk GmbH

Title: TS 25.422 v2.0.0 UTRAN Iur Interface Signalling Transport

Document for: Approval

The purpose of the contribution is the modification of the technical specification in a minor item.

The changed item is 4.2.3 Signalling Bearer based on IP&SS7. A new sentence was added in the first section related to figure 3.

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Technical Specification

3rd Generation Partnership Project (3GPP); Technical Specification Group (TSG) RAN; UTRAN Iur Interface Signalling Transport

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Contents

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Foreword

This Technical Specification has been produced by the 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 this TS, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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x the first digit:

1 presented to TSG for information;

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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 specification.

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. This 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.
- 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. **Q.2100** (7/94) B-ISDN signalling ATM adaptation layer (SAAL) - overview description.
2. **Q.2110** (7/94) B-ISDN ATM adaptation layer - Service specific connection oriented protocol (SSCOP).
3. **Q.2140** (2/95) B-ISDN ATM adaptation layer - Service specific coordination function for signalling at the network node interface (SSCF AT NNI).
4. **Q.2210** (7/96) Message transfer part level 3 functions and messages using the services of ITU-T Recommendation Q.2140.
5. **I.361** (11/95) B-ISDN ATM layer specification.

6. **I.363.5** (8/96) B-ISDN ATM Adaptation Layer Type 5.

7. **Q.711** (7/96) Functional description of the signalling connection control part
8. **Q.712** (7/96) Definition and function of Signalling connection control part messages
9. **Q.713** (7/96) Signalling connection control part formats and codes
10. **Q.714** (7/96) Signalling connection control part procedures
11. **Q.715** (7/96) Signalling connection control part user guide
12. **Q.716** (3/93) Signalling connection control part (SCCP) performance
13. **IETF RFC 791** (9/1981): Internet Protocol

14. Rytina I., "Framework for generic Common Transport Protocol", draft-sigtran-rytina-generic-framework-00.txt,

3 Definitions, symbols and abbreviations

3.1 Definitions

3.2 Symbols

3.3 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
CTP	Common Transport Protocol
IP	Internet Protocol
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
SSCF	Service Specific Co-ordination Function
SSCOP	Service Specific Connection Oriented Protocol
UE	User Equipment

4 RNSAP Signalling Bearer

4.1 Introduction

This chapter specifies the Signaling Bearer protocol stack that supports the RANAP 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.

4.2 Signalling Bearer

This chapter refers to specifications of the Signalling Bearer for the Radio Network Layer protocols.

The three alternatives for the Signalling Bearers of the Radio Network Control Plane, which are currently being debated are discussed in the following sub-sections.

Note1: These three alternatives are FFS, and one would be chosen for the release ’99.

Note2: In case CTP Protocol does not become ready, for reference, by September ’99, WG3 will re-evaluate the protocol option of using CTP for release ’99.

4.2.1 Signalling Bearer Based on SS7

This chapter refers to specifications of the Signalling Bearer for the Radio Network Layer protocols as shown in alternative 1 of Figure 1.

ALTERNATIVE 1

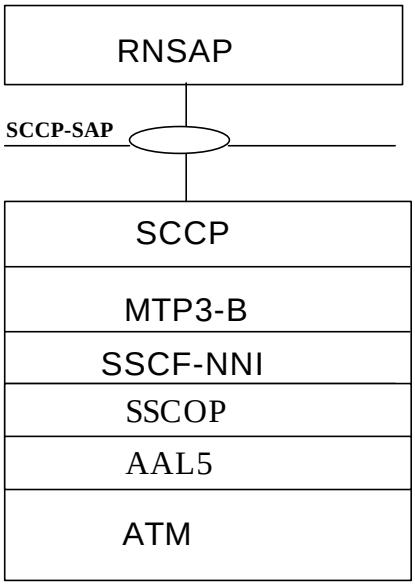

Fig.1 Alternative 1

-1 **SCCP** [7] provides connectionless service, class 0, connectionless service with guaranteed order, class 1, 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-NNI** [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]

4.2.2 Signalling Bearer based on IP

This chapter refers to specifications of the Signalling Bearer for the Radio Network Layer protocols, as shown in the alternative of figure 2.

ALTERNATIVE 2

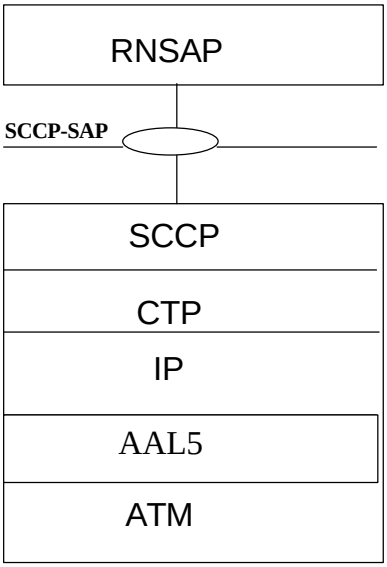

Fig.2 Alternative 2

Note: In case CTP Protocol does not become ready, for reference, by September ’99, WG3 will re-evaluate the

-1 **SCCP** [7] provides connectionless service, class 0, connectionless service with guaranteed order, class 1, 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 **CTP** [14] is a generic term used to describe the protocol being developed by the Sigtran working group of the IETF for the purposes of transporting various signaling protocols over IP networks.

-3 **IP** [13] is supported by AAL5 [6] and ATM [5]

4.2.3 Signalling Bearer based on IP & SS7

This chapter refers to specifications of the Signalling Bearer for the Radio Network Layer protocols, as shown in the alternative 3, of figure 3. *The SS-7 based signalling shall be mandatory and the IP-based signalling shall be optional.* This allows operators to chose one out of two protocol to suites for transport of SCCP messages.

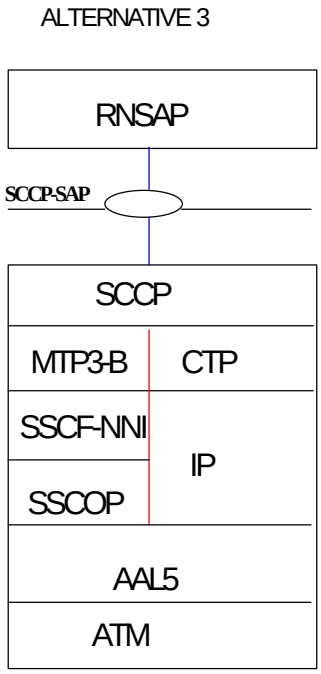

Fig.3 Alternative 3

Note1: In case CTP Protocol does not become ready, for reference, by September ’99, WG3 will re-evaluate the protocol option of using CTP for release ’99.

-1 **SCCP** [7] provides connectionless service, class 0, connectionless service with guaranteed order, class 1, 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.

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-4 **ATM** [5]

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-6 **IP** [13] is supported by AAL5 [6] and ATM [5]

4.3 Services Provided by the Signalling Bearer

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

5 History

Document history		
V0.0.1	March 1999	First draft
V0.0.2	March 1999	Relevant sections from Merged “Description of Iur Interface” have been introduced.
V0.0.3	April 1999	No Changes except the index numbering has changed & editorial change.
V0.1.0	April 1999	Mail Approval of version 0.0.3 by TSG RAN WG3.
V1.0.1	April 1999	Editorial changes, Removal example sequences. This documents reflects the Draft editors decision to add the protocol name definition same as in s3.12. This also reflects the decision of the chair to include the three possible alternatives for the signalling bearer for the release ’99.
V1.0.2	April 1999	This updated version reflects the changes discussed in the SWG3 meeting, Drafting Group. Re-stated the alternatives, added references, added abbreviations.
V2.0.0	April 1999	This updated version reflects the changes discussed in the wg3 plenary meeting. These changes reflects the removal of table in section 4.3 and some editorial changes. Section on Bibliography is removed. The following sentence is added ‘The standard allows operators to chose one out of two standardised protocol to suites for transport of SCCP messages’ to the section 4.1.3.

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