3GPP TSG-RAN meeting #5
Kyongju, Korea, 6-8 October 1999

RP-99515

Title: Approved Change Requests on TS 25.422
Agenda item: 6.4.3

TDOC	STATUS	SPEC	CR	REV	SUBJECT	CAT	CURRENT	NEW
R3-99c94	approved	25.422	001		SCTP Evaluation	D	3.0.0	3.1.0
R3-99d06	approved	25.422	002		ATM switching layer	B	3.0.0	3.1.0

3GPP TSG-RAN-WG3 meeting #7 ***Document*** ***R3-99C94***

Sophia Antipolis, France, September 20 - 24 1999

3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.422 **CR** **001** Current Version: 3.0.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submission to TSG *list TSG meeting no. here ↑* | for approval [X] | for information [ ] | *(only one box should be marked with an X)*

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

Proposed change affects: *(at least one should be marked with an X)* USIM [ ] ME [ ] UTRAN [X] Core Network [ ]

Source: Motorola **Date:** Sept 22, 1999

Subject: SCTP Evaluation

3G Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	[ ]
A	Corresponds to a correction in a 2G specification	[ ]
B	Addition of feature	[ ]
C	Functional modification of feature	[ ]
D	Editorial modification	[X]

Reason for change: The TSG RAN WG3 has concluded that SCTP is ready for reference in 3GPP specifications. This CR presents the changes necessary to update TS 25.422

Clauses affected:

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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. IETF RFC 1483 (7/1993): "Multiprotocol Encapsulation over ATM Adaptation Layer 5"

15. IETF RFC 2225 (4/1998): "Classical IP and ARP over ATM"

16. IETF RFC 768 (8/1980): "User Datagram Protocol"

~~14.Rytina I., "Framework for generic Common Transport Protocol", draft-sigtran-rytina-generic-framework-00.txt, IETF, Feb. '99.~~

17. R. Stewart et al, "Simple Control Transmission Protocol", draft-ieft-sigtran-sctp-v0.txt (Work In Progress), IETF, September 1999

18. G. Sidebottom et al, "SS7 ISUP Tunneling", draft-ietf-sigtran-itun-00.txt (Work In Progress), IETF, June 1999

1 3 Definitions, symbols and abbreviations

1.1 3.1 Definitions

1.2 3.2 Symbols

1.3 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
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

2 4 RNSAP Signalling Bearer

4.1 Introduction

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

- 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. As shown in figure 3, the standard allows operators to choose one out of two protocol to suites for transport of SCCP messages.

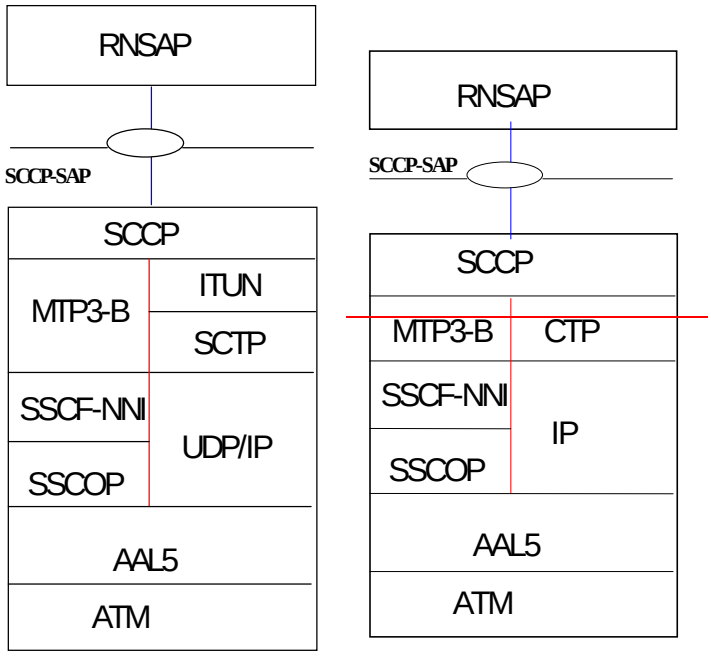

Fig.3 Signalling bearer for RNSAP

~~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.

-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** ~~[14] is a generic term used to describe the p~~refers to the Simple Control Transmission Protocol [17] ~~being~~ developed by the Sigtran working group of the IETF for the purposes of transporting various signaling protocols over IP networks. ITUN refers to the SCCP adaptation layer "SS7 ISUP Tunneling" [18] also developed by the Sigtran working group of the IETF.

-6 UDP[16] / **IP** [13] over ATM are defined in [14] and [15].~~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. RNSAP, 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.
V2.0.1	May 1999	Correction from RANAP to RNSAP.

3GPP TSG-RAN-WG3 meeting #7

Sophia Antipolis, France, September 20-24, 1999

Document R399D06

3G CHANGE REQUEST

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25.422 **CR** **002** Current Version: 3.0.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submision to TSG *list TSG meeting no. here ↑*

for approval [X]
for information [ ]

(only one box should be marked with an X)

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

Proposed change affects: *(at least one should be marked with an X)* USIM [ ] ME [ ] UTRAN [X] Core Network [ ]

Source: Motorola **Date:** Sept 20-24, 1999

Subject: ATM switching layer

3G Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	
A	Corresponds to a correction in a 2G specification	
B	Addition of feature	X
C	Functional modification of feature	
D	Editorial modification	

Reason for change: For multivendor operability it is required to specify the mechanism by which redundancy of pathways between RNCs will be accomplished when redundancy is supported.

Clauses affected:

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

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
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13. **IETF RFC 791** (9/1981): Internet Protocol
14. Rytina I., “Framework for generic Common Transport Protocol”, draft-sigtran-rytina-generic-framework-00.txt, IETF, Feb. ’99.
15. ITU-T Rec. **I.630** (2/99) ATM Protection Switching

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 ATM Layer

4.1 General

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

4.2 Protection Switching at ATM Layer

If redundancy of pathways at ATM layer between RNCs is supported, it shall be implemented using ATM Protection Switching according to I.630 [15].

54 RNSAP Signalling Bearer

~~4.1~~5.1 Introduction

This chapter 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.

~~4.2~~5.2 Signalling Bearer