TSG-RAN Meeting #7
Madrid, Spain, 13 - 15 March 2000

TSGRP#7(00)0077

Title: **Agreed CRs to TS 25.412**

Source: **TSG-RAN WG3**

Agenda item: **6.4.3**

Tdoc_Num	Specification	CR_Num	Revision_Num	CR_Subject	CR_Category	WG_Status	Cur_Ver_Num	New_Ver_Num
R3-000417	25.412	001		Removal of ATM Protection Switching	C	agreed	3.2.0	3.1.0
R3-000743	25.412	002	1	Protocol stack updates for Iu-PS	C	agreed	3.2.0	3.1.0

3GPP TSG RAN WG3 Meeting #11
Sophia Antipolis, France, 28.2.-3.3. 2000

Document* *R3-000417

CHANGE REQUEST

25.412	CR	001	Current Version:	3.2.0

↑ *CR number as allocated by MCC support team*

For submission to:	RAN#7	for approval	X	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME		UTRAN / Radio	X	Core Network	X

Source: TSG-RAN WG3 **Date:** 22nd Feb. 2000

Subject: Removal of ATM Protection Switching

Work item:

Category: *(only one category shall be marked with an X)*				**Release:**	
	F	Correction			Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
	B	Addition of feature			Release 97	
	C	Functional modification of feature	X		Release 98	
	D	Editorial modification			Release 99	X
					Release 00	

Reason for change: As agreed at RAN WG3#10 the ATM Protection Switching is removed from Iu and Iur interface specifications. This CR is one of the two missing CRs from the last meeting.

Clauses affected: Chapter 2 and 4.2

Other specs affected:			
Other 3G core specifications		→ List of CRs:	
Other GSM 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:

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 Co-ordination 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] ITU-T Rec. **I.630** (2/99) ATM Protection Switching~~

[14] **IETF RFC 791** (9/1981): Internet Protocol

[15] IETF RFC 1483 (7/1993): "Multim Protocol Encapsulation over ATM Adaptation Layer 5"

[16] IETF RFC 2225 (4/1998): "Classical IP and ARP over ATM"

[17] IETF RFC 768 (8/1980): "User Datagram Protocol"

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

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

4 ATM Layer

4.1 General

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

~~4.2Protection Switching at ATM Layer~~

~~If redundancy of pathways at ATM layer between CN and RNC is supported, it shall be implemented using ATM Protection Switching according to I.630 [13].~~

3GPP TSG-RAN WG3 Meeting #11
Sophia Antipolis, France, 28 Feb – 03 Mar 2000

***Document* R3-000743**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

25.412	CR	002r1	Current Version:	3.2.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN#7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [X]
(at least one should be marked with an X)

Source: TSG-RAN WG3 **Date:** 28 Feb 2000

Subject: Protocol stack updates for Iu-PS

Work item:

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

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature	X		Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: RANAP control plane protocol stack for IP domain updated to use M3UA instead of ITUN. SCTP runs over IP – UDP removed.

Clauses affected: 2 References
5.3 Signalling Bearer for Packet Switched Domain

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM 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

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[18] R. Stewart et al, "Simple Control Transmission Protocol", draft-ieft-sigtran-sctp-v6~~0~~.txt (IESG Last Call Version~~Work In Progress~~), IETF, ~~September 1999~~February 2000

[19] G. Sidebottom et al, "SS7 MTP3 – User Adaptation Layer", draft-ietf-sigtran-m3ua-01.txt (Work In Progress), IETF, February 2000~~"SS7 ISUP Tunnelling", draft-ietf-sigtran-itun-00.txt (Work In Progress), IETF, June 1999~~

5 RANAP Signalling Bearer

5.1 Introduction

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

The following requirements on the 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 UE's;
- Supervise the 'UE connections' and provide connection status information to the Upper Layers for individual UE's;
- Provide networking and routing functions;
- Provide redundancy in the signalling network;
- Provide load sharing.

5.2 Signalling Bearer for Circuit Switched Domain

The following figure 1 illustrates the protocol model having Broadband Signalling System No.7 as the signalling bearer for RANAP over the Iu interface that fulfils the requirements. Figure 1 shows, for the CS domain, the point at which the service primitives are invoked. The SAP provides the SCCP primitives.

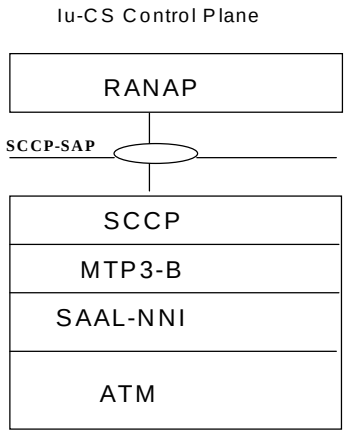

Figure 1: SAP between RANAP and its transport for Iu – CS Domain

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]

5.3 Signalling Bearer for Packet Switched Domain

The protocol stacks for the PS Domain is shown in figure 2. The standard allows operators to chose one out of two standardised protocol to suites for transport of SCCP messages.

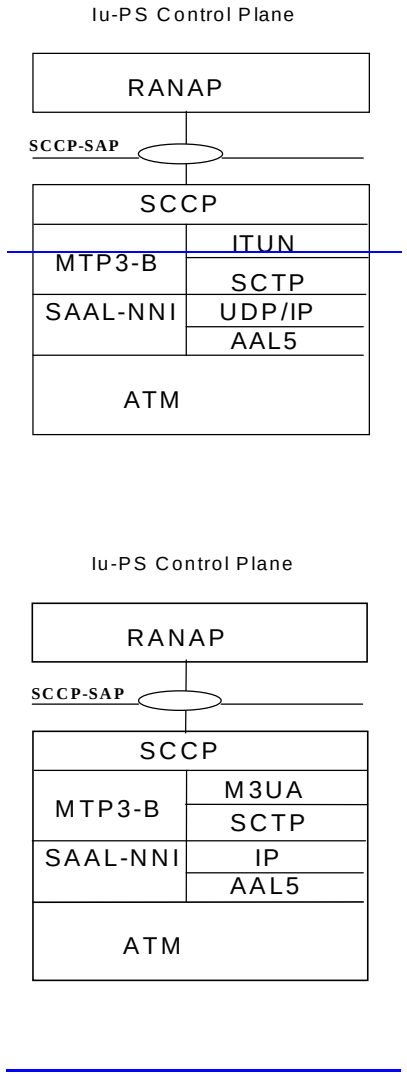

Figure 2: SAP between RANAP and its transport for the Iu –IP domain

Figure 2 shows, for the Iu IP domain, the point at which the service primitives are invoked. A single SAP is defined independently of the signalling bearer. The SAP provides the SCCP primitives. The figure is not intended to constrain the architecture.

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-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]

5. S**CTP** [18] refers to the Simple Control Transmission Protocol [18] developed by the Sigtran working group of the IETF for the purpose of transporting various signalling protocols over IP networks. ~~ITUN~~ M3UA refers to the SCCP adaptation layer "SS7 MTP3 – User Adaptation Layer ~~ISUP Tunnelling~~ " [19] also developed by the Sigtran working group of the IETF.

6. ~~**UDP** [16] /~~**IP** [14] over ATM ~~are~~is defined in [15] and [16]

5.4 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 numbers of services that the signalling bearer shall provide, to the upper layers, are stated in the references [7] to [12].