

**TSG-RAN Meeting #8  
Düsseldorf, Germany, 21 - 23 June 2000**

**TSGRP#8(00)0240**

**Title:** Agreed CRs to TS 25.422

**Source:** TSG-RAN WG3

**Agenda item:** 5.3.3

<b>Tdoc_Num</b>	<b>Specification</b>	<b>CR_Num</b>	<b>Revision_Nu</b>	<b>CR_Subject</b>	<b>CR_Category</b>	<b>WG_Status</b>	<b>Cur_Ver_Num</b>	<b>New_Ver_Nu</b>
R3-001559	25.422	004	1	Clarification of ATM cell format	F	agreed	3.3.0	3.4.0
R3-001599	25.422	005	1	Correction to version number of SCTP and	F	agreed	3.3.0	3.4.0

## 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 004r1**

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **RAN#8**  
list expected approval meeting # here ↑

for approval   
for information

strategic   
non-strategic  (for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG

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**Proposed change affects:**

(at least one should be marked with an X)

(U)SIM  ME  UTRAN / Radio  Core Network

**Source:**

R-WG3

**Date:**

May, 2000

**Subject:**

Clarification of ATM cell format

**Work item:**

**Category:**

(only one category shall be marked with an X)

F Correction   
A Corresponds to a correction in an earlier release   
B Addition of feature   
C Functional modification of feature   
D Editorial modification

**Release:**

Phase 2   
Release 96   
Release 97   
Release 98   
Release 99   
Release 00

**Reason for change:**

The ITU-T ATM Layer Specification I.361 provides three options:

- ATM layer for NNI
- ATM layer for UNI without use of GFC
- ATM layer for UNI with GFC.

**Seamless interworking between these options is not possible.**

Therefore, the user of this specification has to choose one of the options for a particular interface.

ATM based Iu and Iur interfaces are interfaces between network nodes or networks (RAN, CN). **Therefore, the NNI cell format has to be chosen for the ATM layer.**

Note: In contrast, the UNI cell format is chosen for interfaces between a user terminal and the operator's ATM network.

**Clauses affected:**

2, 4

**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:**

Update of CR04 (R3-001367)



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## 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 (11/1995): "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-ietf-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.

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## 4 ATM Layer

### 4.1 General

ATM shall be used in the radio network control plane according to [4.361](#) [5]. The structure of the cell header used in the UTRAN Iur interface is the cell header format and encoding at NNI (see Figure 3 of [5/4.361](#)).

3GPP TSG-RAN WG3 Meeting #11  
Hawaii, USA, May 22-26<sup>th</sup> 2000

Document **R3-001599**

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

**CHANGE REQUEST**

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**25.422 CR 05r1**

Current Version: **3.3.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

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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  Core Network   
(at least one should be marked with an X)

**Source:** R-WG3 **Date:** 25 May 2000

**Subject:** Corrections to SCTP and M3UA Version Numbers and SCTP Name

**Work item:**

<b>Category:</b> <small>(only one category shall be marked with an X)</small>	F Correction	<input checked="" type="checkbox"/>	<b>Release:</b>	Phase 2	<input type="checkbox"/>
	A Corresponds to a correction in an earlier release	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
	B Addition of feature	<input type="checkbox"/>		Release 97	<input type="checkbox"/>
	C Functional modification of feature	<input type="checkbox"/>		Release 98	<input type="checkbox"/>
	D Editorial modification	<input type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
			Release 00	<input type="checkbox"/>	

**Reason for change:** Update to latest available versions of SCTP and M3UA.

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

<b>Other specs affected:</b>	Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
	Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
	MS test specifications	<input type="checkbox"/>	→ List of CRs:	
	BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
	O&M specifications	<input type="checkbox"/>	→ List of CRs:	

**Other comments:**



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## 2 References

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- [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".
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- [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 Stream Control Transmission Protocol](#)", draft-ietf-sigtran-sctp-v96.txt (IESG Last Call Version), IETF, [February-19 April 2000](#).
- [17] G. Sidebottom et al, "SS7 MTP3 - User Adaptation Layer", draft-ietf-sigtran-m3ua-024.txt (Work In Progress), IETF, [February-10 March 2000](#).

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## 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 Mode
IP	Internet Protocol
<del>ITUN</del>	<del>SS7 ISUP Tunnelling (Adaptation layer for ISUP and SCCP for SCTP)</del>
M3UA	SS7 MTP3 User Adaptation Layer
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	<u>Simple-Stream</u> Control Transmission Protocol
SSCF	Service Specific Co-ordination Function
SSCOP	Service Specific Connection Oriented Protocol
UE	User Equipment

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## 4 ATM Layer

### 4.1 General

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

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## 5 RNSAP Signalling Bearer

### 5.1 Introduction

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

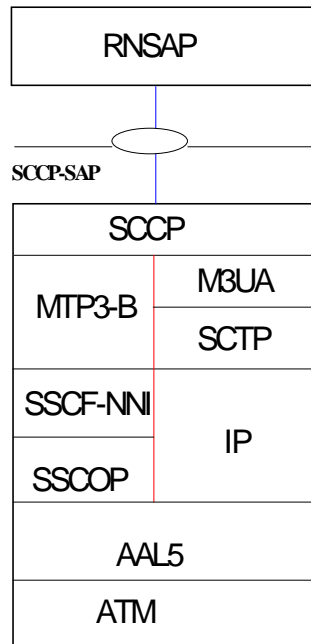
The following requirements on the RNSAP signalling bearer can be stated:

- 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. **SCTP** refers to the [Simple-Stream](#) 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].