RP-99520

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

Title: Approved Change Requests on TS 25.426
Agenda item: 6.4.3

TDOC	STATUS	SPEC	CR	REV	SUBJECT	CAT	CURRENT	NEW
R3-99a35	approved	25.426	001		Mapping of binding id	D	3.0.0	3.1.0
R3-99c95	approved	25.426	002		Iur ALCAP Signalling Bearer and SCTP Evaluation	B	3.0.0	3.1.0
R3-99d05	approved	25.426	003		ATM switching layer	B	3.0.0	3.1.0

3GPP TSG-RAN-WG3 meeting #6   *Document* **R3-99A35**

Sophia Anitpolis, France, August 23-27, 1999   *Agenda Item : 22*

3G CHANGE REQUEST

25.426 **CR** **001**   Current Version: 3.0.1

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

For submission to TSG _____   for approval **X** *(only one box should*
list TSG meeting no. here ↑   for information ☐ *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: USIM ☐   ME ☐   UTRAN **X**   Core Network ☐
(at least one should be marked with an X)

Source: Mitsubishi   **Date:** Aug 23-27, 1999

Subject: Mapping of binding id

3G Work item:

Category: F Correction   ☐
                   A Corresponds to a correction in a 2G specification ☐
(only one category B Addition of feature   ☐
shall be marked   C Functional modification of feature   ☐
with an X)   D Editorial modification   **X**

Reason for change: Precise how to map binding Identifier within the current transport network (when using AAL2)

Clauses affected:

Other specs affected:

Other 3G core specifications	**X**	→ List of CRs:	25.414, 25.424, 25.434	
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:

5 Transport Signalling Application for DCH Data Streams

5.1 ALCAP

AAL2 signalling protocol Capability Set 1 [5] is the signalling protocol to control AAL2 connections on Iub and Iur interfaces.

Binding ID provided by the radio network layer shall be copied in SUGR parameter of ESTABLISH.request primitive of [5].

User Plane Transport bearers for Iur interface are established and released by the ALCAP in the Serving RNC. The binding identity shall already be assigned and tied to a radio application procedure when the first ALCAP message is received over the Iur interface in the Drift RNC.

User Plane Transport bearers for Iub interface are established and released by the ALCAP in the Controlling RNC.

AAL2 transport layer addressing is based on embedded E.164 or AESA variants of the NSAP addressing format [6, 7]. Native E.164 addressing shall not be used.

3G CHANGE REQUEST

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

25.426 CR	**001**	Current Version:	3.0.0

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

For submission to TSG _____   for approval **X** *(only one box should*
list TSG meeting no. here ↑   for information ☐ *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: USIM ☐   ME ☐   UTRAN **X**   Core Network ☐
(at least one should be marked with an X)

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

Subject:	Iur ALCAP Signalling Bearer and SCTP Evaluation

3G Work item:	

Category: F Correction   ☐
                    A Corresponds to a correction in a 2G specification   ☐
(only one category B Addition of feature   **X**
shall be marked   C Functional modification of feature   ☐
with an X)   D Editorial modification   ☐

Reason for change: TSG RAN's decision to allow IP as an option for Iur RNSAP signalling bearer makes IP also a valid option for Iur ALCAP signalling bearer. This CR proposes that IP based signalling bearer allowed as an option the same way it is allowed for Iur RNSAP signalling bearer. This was originally accepted by TSG RAN WG3 in its Helsinki meeting in July (R3-99798). At that time, that decision was subject to SCTP evaluation in September, and now that SCTP has been evaluated to be included in 3GPP specs, this CR is being submitted for TSG approval.

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:	

[4]   ITU-T Recommendation I.366.1 Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL type 2 (6/98)

[5]   Draft new ITU-T Recommendation Q.2630.1 AAL Type 2 signalling protocol (Capability Set 1)

[6]   ITU-T Recommendation E.191 B-ISDN numbering and addressing (10/96)

[7]   ITU-T Recommendation X.213 Information Technology – Open Systems Interconnection – Network Service Definition (11/95)

[8]   ITU-T Recommendation Q.2110 B-ISDN ATM Adaptation layer – Service Specific Connection Oriented Protocol (SSCOP) (7/94)

[9]   ITU-T Recommendation Q.2130 B-ISDN Signaling ATM Adaptation Layer – Service Specific Coordination Function for Support of Signaling at the User Network Interface (SSCF at UNI) (7/94)

[10]   Draft new ITU-T Recommendation Q.2150.2 AAL Type 2 Signalling Transport Converter on SSCOP

[11]   ITU-T Recommendation Q.2210 Message transfer part level 3 functions and messages using the services of the ITU-T Recommendation Q.2140 (7/96)

[12]   ITU-T Recommendation Q.2140 B-ISDN Signaling ATM Adaptation Layer – Service Specific Coordination Function for Support of Signaling at the Network Node Interface (SSCF at NNI) (2/95)

[13]   Draft new ITU-T Recommendation Q.2150.1 AAL Type 2 Signalling Transport Converter on MTP-3B

~~[14]   Ong Lyndon et.al. Internet Draft Architectural Framework for Signalling Transport, draft-ietf-sigtran-framework-arch-01.txt, April 1999~~

[14~~5~~] IETF RFC 791 (09/1981) Internet Protocol

[15]   IETF RFC 1483 (7/1993): "Multiprotocol 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 Tunneling", draft-ietf-sigtran-itun-00.txt (Work In Progress), IETF, June 1999

1 Abbreviations and Definitions

1.1 Abbreviations

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

AAL2	ATM Adaptation Layer type 2
AESA	ATM End System Address
ATM	Asynchronous Transfer Mode
CPCS	Common Part Convergence Sublayer
CPS	Common Part Sublayer
DCH	Dedicated Channel
ITUN	SS7 ISUP Tunnelling (Adaptation layer for ISUP and SCCP for SCTP)
MTP	Message Transfer Part
NNI	Network-Node Interface
NSAP	Network Service Access Point
SAAL	Signalling ATM Adaptation Layer
SAR	Segmentation and Reassembly
SCTP	Simple Control Transmission Protocol

SSCF	Service Specific Co-ordination Function
SSCOP	Service Specific Connection Oriented Protocol
SSCS	Service Specific Convergence Sublayer
SSSAR	Service Specific Segmentation and Reassembly sublayer
STC	Signalling Transport Converter
UNI	User-Network Interface

2 Signalling Bearer for ALCAP on I~ur~ Interface

2.1 Introduction

This chapter specifies the signalling bearer for the ALCAP on the Iur interface. Signalling bearer is used for the conveyance of the ALCAP messages between the peer UTRAN nodes.

1.22.2 Signalling Bearer

There are two protocol stacks specified for Iur ALCAP Signalling Bearer – one based on MTP-3B [11] and SAAL-NNI [12, 8] and the other based on SCTP [18]are used as a signalling for AAL2 signalling. Signalling Transport Converter for MTP-3B is applied [13]. SCCP Adaptation Layer for SCTP is applied [19]. The following figure shows the signalling bearer protocol stacks for the ALCAP on Iur interface.

Note: Signalling bearer solution based on Common Transport Protocol/Internet Protocol (CTP/IP) [14, 15] may be considered depending on the outcome of the signalling bearer considerations for RNSAP in TSG RAN.
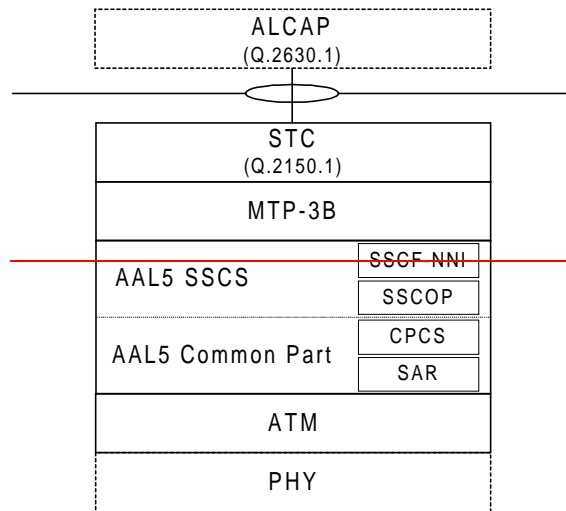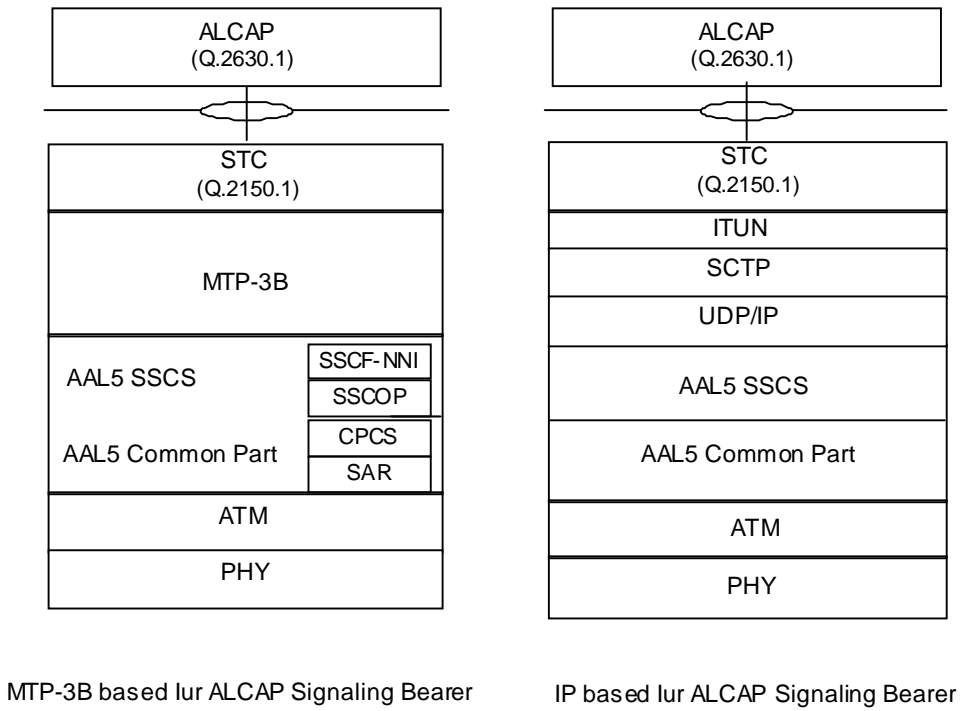
ALCAP (Q.2630.1)		ALCAP (Q.2630.1)	
STC (Q.2150.1)		STC (Q.2150.1)	
MTP-3B		ITUN	
		SCTP	
		UDP/IP	
AAL5 SSCS	SSCF-NNI	AAL5 SSCS	
	SSCOP		
AAL5 Common Part	CPCS	AAL5 Common Part	
	SAR		
ATM		ATM	
PHY		PHY	

MTP-3B based Iur ALCAP Signaling Bearer   IP based Iur ALCAP Signaling Bearer

ALCAP (Q.2630.1)	
STC (Q.2150.1)	
MTP-3B	
AAL5 SSCS	SSCF-NNI
	SSCOP
AAL5 Common Part	CPCS
	SAR
ATM	
PHY	

Figure 3: Signalling bearers for ALCAP on Iur interface

3G CHANGE REQUEST

| **25.426** | CR | **003** | Current Version: | 3.0.0 |

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

For submision to TSG _____   for approval **X**   *(only one box should*
list TSG meeting no. here ↑   for information ☐   *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: USIM ☐   ME ☐   UTRAN **X**   Core Network ☐
(at least one should be marked with an X)

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

Subject: ATM switching layer

3G Work item:

Category: F Correction   ☐
           A Corresponds to a correction in a 2G specification   ☐
(only one category B Addition of feature   **X**
shall be marked   C Functional modification of feature   ☐
with an X)   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:

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3G TS 25.426 V3.0.0 1999-06

1 References

[1]   TS UMTS 25.427: UTRAN Iur and Iub User plane Protocol for DCH Data Streams

[2]   ITU-T Recommendation I.361 B-ISDN ATM Layer Specification (11/95)

[3]   ITU-T Recommendation I.363.2 B-ISDN ATM Adaptation Layer type 2 (9/97)

[4]   ITU-T Recommendation I.366.1 Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL type 2 (6/98)

[5]   Draft new ITU-T Recommendation Q.2630.1 AAL Type 2 signalling protocol (Capability Set 1)

[6]   ITU-T Recommendation E.191 B-ISDN numbering and addressing (10/96)

[7]   ITU-T Recommendation X.213 Information Technology – Open Systems Interconnection – Network Service Definition (11/95)

[8]   ITU-T Recommendation Q.2110 B-ISDN ATM Adaptation layer – Service Specific Connection Oriented Protocol (SSCOP) (7/94)

[9]   ITU-T Recommendation Q.2130 B-ISDN Signaling ATM Adaptation Layer – Service Specific Coordination Function for Support of Signaling at the User Network Interface (SSCF at UNI) (7/94)

[10]   Draft new ITU-T Recommendation Q.2150.2 AAL Type 2 Signalling Transport Converter on SSCOP

[11]   ITU-T Recommendation Q.2210 Message transfer part level 3 functions and messages using the services of the ITU-T Recommendation Q.2140 (7/96)

[12]   ITU-T Recommendation Q.2140 B-ISDN Signaling ATM Adaptation Layer – Service Specific Coordination Function for Support of Signaling at the Network Node Interface (SSCF at NNI) (2/95)

[13]   Draft new ITU-T Recommendation Q.2150.1 AAL Type 2 Signalling Transport Converter on MTP-3B

[14]   Ong Lyndon et.al. Internet-Draft Architectural Framework for Signalling Transport, draft-ietf-sigtran-framework-arch-01.txt, April 1999

[15]   IETF RFC 791 (09/1981) Internet Protocol

[16]   ITU-T Rec. **I.630** (2/99) ATM Protection Switching

2 Abbreviations and Definitions

2.1 Abbreviations

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

AAL2	ATM Adaptation Layer type 2
AESA	ATM End System Address
ATM	Asynchronous Transfer Mode
CPCS	Common Part Convergence Sublayer
CPS	Common Part Sublayer
DCH	Dedicated Channel
MTP	Message Transfer Part
NNI	Network-Node Interface
NSAP	Network Service Access Point
SAAL	Signalling ATM Adaptation Layer

SAR	Segmentation and Reassembly
SSCF	Service Specific Co-ordination Function
SSCOP	Service Specific Connection Oriented Protocol
SSCS	Service Specific Convergence Sublayer
SSSAR	Service Specific Segmentation and Reassembly sublayer
STC	Signalling Transport Converter
UNI	User-Network Interface

1.22.2 Definitions

ALCAP is a generic name for the transport signalling protocol used to setup and tear down transport bearers.

3 ATM Layer

3.1 General

ATM shall be used in the transport network user plane and transport network control plane according to I.361 [2].

3.2 Protection Switching at ATM Layer

If redundancy of pathways at ATM layer between RNCs or RNC and Node B is supported, it shall be implemented using ATM Protection Switching according to I.630 [16].

34 I$_{ur}$ and I$_{ub}$ Data Transport for DCH Data Streams

3.14.1 Introduction

The Frame Protocol for DCH data streams [1] is the user of the transport layer specified in this Technical Specification.

1.24.2 Transport Layer

Asynchronous Transfer Mode (ATM) [2] and ATM Adaptation Layer type 2 (AAL2) [3, 4] are used as a transport layer for DCH data streams on Iur and Iub interfaces. Service Specific Segmentation and Reassembly (SSSAR) sublayer for AAL2 is used for the segmentation and reassembly of AAL2 SDUs.
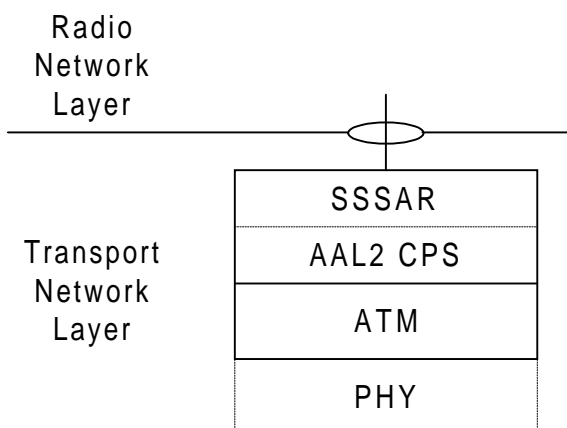
```
        Radio
      Network
        Layer        ──────────────────⬭──────────────
                                 ┌──────────────────┐
                                 │      SSSAR       │
      Transport                  ├──────────────────┤
      Network                    │     AAL2 CPS     │
        Layer                    ├──────────────────┤
                                 │       ATM        │
                                 ├──────────────────┤
                                 │       PHY        │
                                 └──────────────────┘
```

Figure 1. Transport network layer for DCH data streams over Iur and Iub interfaces.