

# ETSI TS 125 442 V5.0.0 (2002-03)

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*Technical Specification*

## **Universal Mobile Telecommunications System (UMTS); UTRAN Implementation Specific O&M Transport (3GPP TS 25.442 version 5.0.0 Release 5)**



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Reference

RTS/TSGR-0325442Uv5

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Keywords

UMTS

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# Foreword

This Technical Specification (TS) has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

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Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- 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 document.

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# 1 Scope

The present document specifies the transport of implementation specific O&M signalling between Node B and the Management Platform in case that the transport is routed via the RNC.

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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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 25.431: "UTRAN Iub interface Layer 1".
  - [2] 3GPP TS 25.401: "UTRAN Overall Description".
  - [3] ITU-T Recommendation I.363.5 (8/1996): "B-ISDN ATM Adaptation Layer Type 5 Specification".
  - [4] IETF RFC 2225 (4/1998): "Classical IP and ARP over ATM".
  - [5] IETF RFC 2684 (9/1999): "Multiprotocol Encapsulation over ATM Adaptation Layer 5".
  - [6] IETF RFC 791 (9/1981): "Internet Protocol".
  - [7] IETF RFC 2460 (12/1998): "Internet Protocol, Version 6 (IPv6) Specification".
  - [8] 3GPP TS 25.426: "UTRAN Iur and Iub Interface Data Transport&Transport Signalling for DCH".
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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**Logical O&M:** Logical O&M is the signalling associated with the control of logical resources owned by the RNC but physically implemented in Node B.

**Implementation Specific O&M:** Implementation Specific O&M functions depend on the implementation of the Node B, both for its hardware and software components.

### 3.2 Abbreviations

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

AAL5	ATM Adaptation Layer type 5
ATM	Asynchronous Transfer Mode
ARP	Address Resolution Protocol
RFC	Request For Comment
IP	Internet Protocol

O&M	Operation and Maintenance
RNC	Radio Network Controller
TNL	Transport Network Layer

## 4 Implementation Specific O&M Transport

### 4.1 Requirements

While this specification only addresses the transport of Node B Implementation Specific O&M signalling, many of the following requirements are derived from generic requirements for O&M of UMTS network elements:

- Common O&M infrastructure for all network elements.
- Independence from various data link protocols.
- Support of various higher layer protocols and applications.
- Secure transmission.
- No Impact of O&M transport on traffic transport and signalling.
- Re-use of existing transport facilities, i.e. co-existence of Iub and Implementation Specific O&M on the same bearer.

### 4.2 Routing

It is the responsibility of the RNC to route Implementation Specific O&M signalling traffic. The traffic exchanged over this signalling link is completely transparent to the RNC. Both RNC and Node B have to support the routing of Implementation specific O&M via the RNC.

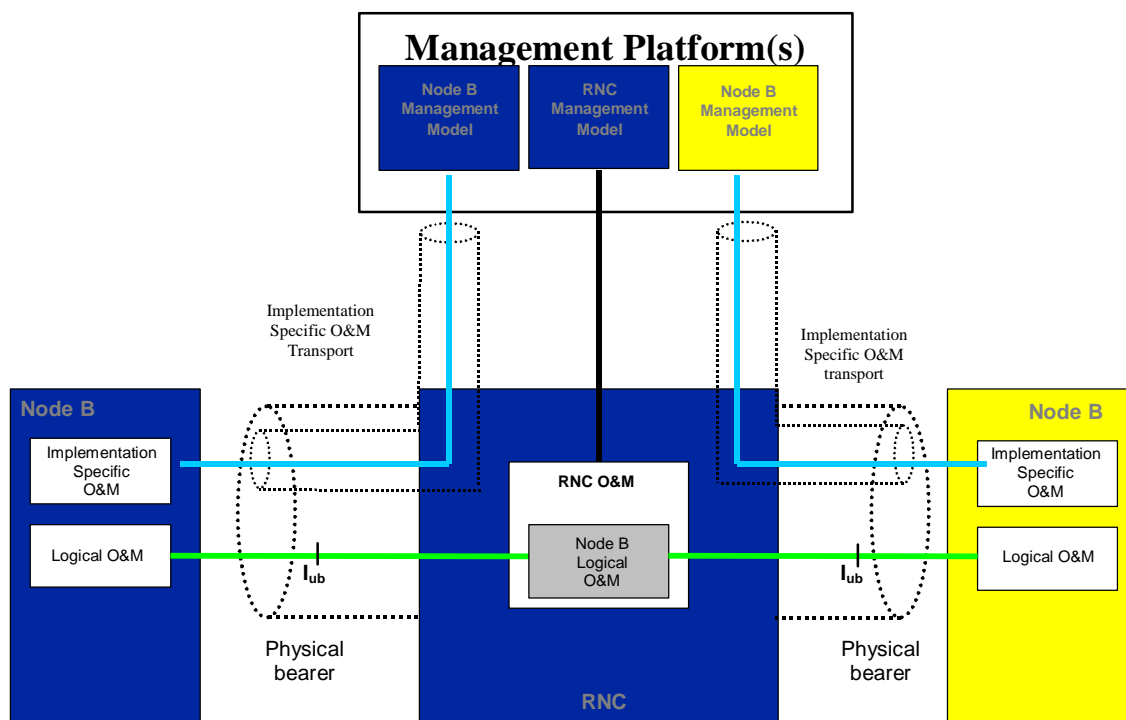


Figure 1: Implementation Specific O&M Transport via RNC

## 4.3 Transport Bearer

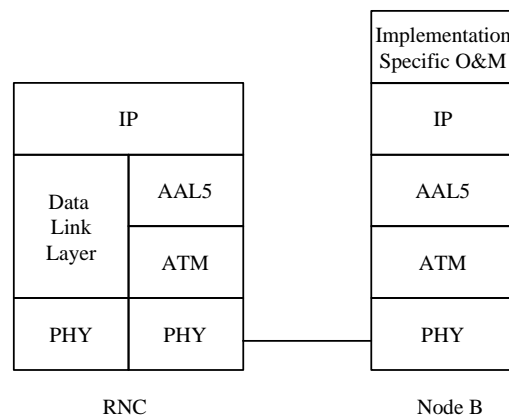
An appropriate transport bearer for Implementation Specific O&M should consider the requirements listed in subclause 4.1. IP [6] should be the transport mechanism in order to allow a data link independent support of a variety of O&M applications and protocols for the Implementation Specific O&M of the Node B.

IP datagrams containing O&M signalling have to be carried over the same bearer as Iub. Since ATM will be used on Iub, IP over ATM should be the bearer for O&M signalling. There are two options for the implementation specific O&M signalling bearer in Iub.

- 1) ATM Transport option
- 2) IP Transport option

### 4.3.1 ATM Transport Option

The following figure shows the protocol stack for Implementation Specific O&M transport between Node B and RNC in case of ATM transport option in Iub:



**Figure 2: Protocol Stack for Implementation Specific O&M Transport (ATM transport option)**

AAL5 shall be used according to ITU-T Recommendation I.363.5.

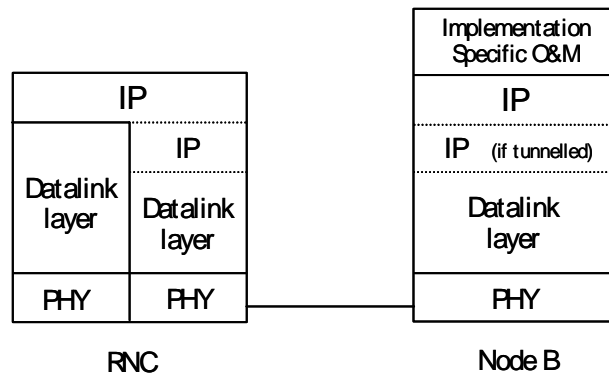
AAL5 virtual circuits are used to transport the IP packets containing Implementation Specific O&M signalling data between Node B and RNC. Multiple VCs can be used over the interface. An association shall be made between a VC and the IP addresses that are related to this VC in the peer node side. This association can be made using O&M or using ATM Inverse ARP according to Classical IP over ATM.

Classical IP over ATM protocols are used to carry the IP packets over the ATM transport network. Classical IP over ATM is specified in IETF RFC 2225. Multiprotocol Encapsulation over AAL5 is specified in IETF RFC 2684.

### 4.3.2 IP Transport Option

The following figure shows the protocol stack for Implementation Specific O&M transport between Node B and RNC in case of IP transport option in Iub:





**Figure 3: Protocol Stack for Implementation Specific O&M Transport (IP TNL)**

Implementation specific O&M signalling is conveyed by IP between the Node B and the RNC. IP-in-IP tunneling may be applied when the Iub Transport Network Layer is used.

IP based Transport Network Layer of Iub is further defined in [8].

## Annex A (informative): Change history

Change history					
TSG RAN#	Version	CR	Tdoc RAN	New Version	Subject/Comment
RAN_05		-	-	3.0.0	A Approved at TSG RAN #5 by correspondence and placed under Change Control
RAN_07	3.0.0	-	-	3.1.0	Approved at TSG RAN #7

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
March 01	11	-	-		Approved at TSG RAN #11 and placed under Change Control	-	4.0.0
03/2002	15	RP-020189	002	1	Introduction of IP transport option in UTRAN	4.0.0	5.0.0

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# History

<b>Document history</b>		
V5.0.0	March 2002	Publication