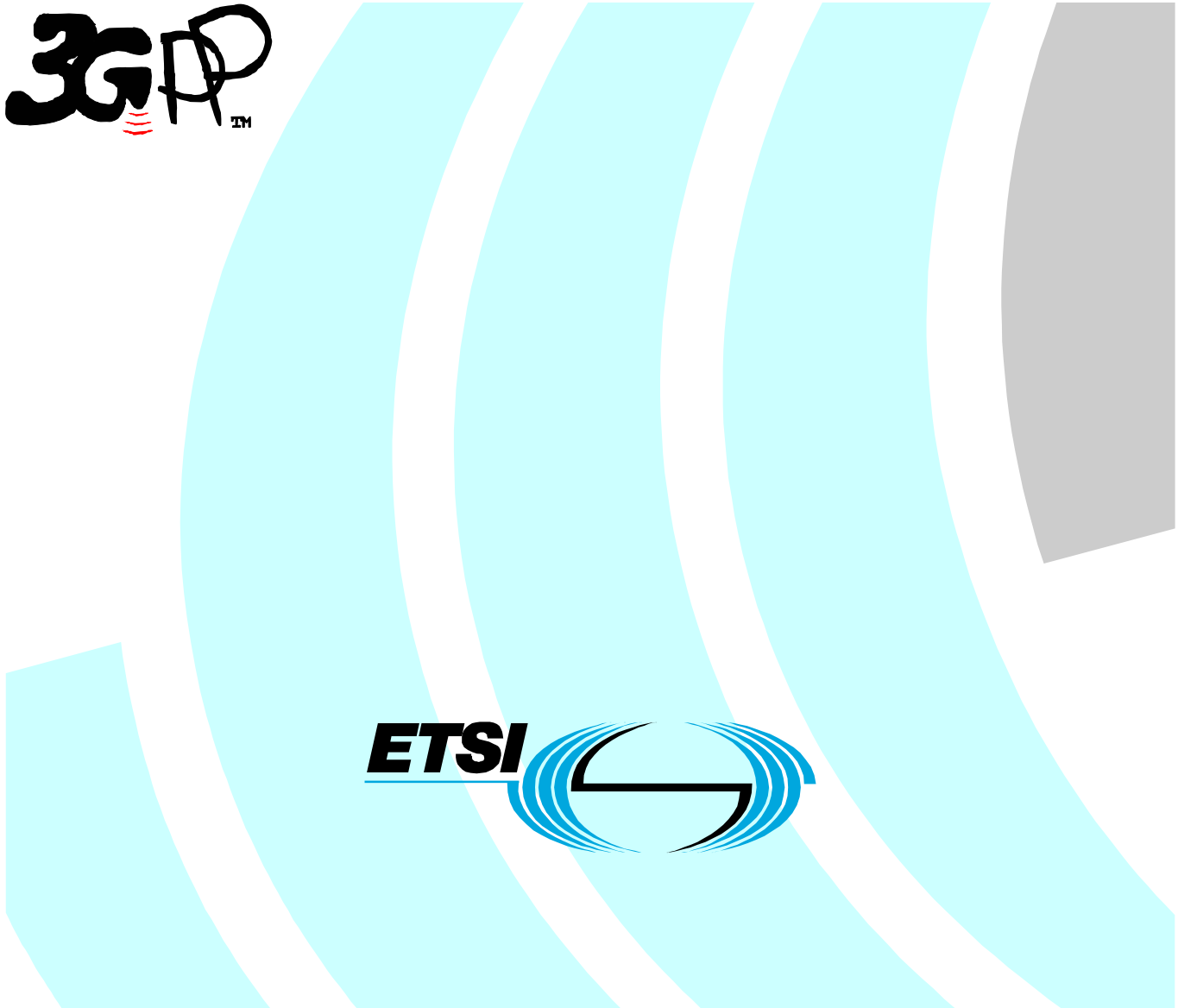
ETSI TS 132 642 V5.1.1 (2002-12)

Technical Specification

Universal Mobile Telecommunications System (UMTS);
Telecommunication management;
Configuration Management (CM);
UTRAN network resources Integration Reference Point (IRP):
Network Resource Model (NRM)
(3GPP TS 32.642 version 5.1.1 Release 5)



Reference
RTS/TSGS-0532642v511

Keywords
UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, send your comment to:
editor@etsi.org

Copyright Notification

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://webapp.etsi.org/IPR/home.asp).

All published ETSI deliverables shall include information which directs the reader to the above source of information.

Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp .

Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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.

Introduction

Configuration Management (CM), in general, provides the operator with the ability to assure correct and effective operation of the 3G network as it evolves. CM actions have the objective to control and monitor the actual configuration on the Network Elements (NEs) and Network Resources (NRs), and they may be initiated by the operator or by functions in the Operations Systems (OSs) or NEs.

CM actions may be requested as part of an implementation programme (e.g. additions and deletions), as part of an optimisation programme (e.g. modifications), and to maintain the overall Quality of Service (QoS). The CM actions are initiated either as single actions on single NEs of the 3G network, or as part of a complex procedure involving actions on many resources/objects in one or several NEs.

Configuration Management (CM), in general, provides the operator with the ability to assure correct and effective operation of the 3G network as it evolves. CM actions have the objective to control and monitor the actual configuration on the Network Elements (NEs) and Network Resources (NRs), and they may be initiated by the operator or by functions in the Operations Systems (OSs) or NEs.

1 Scope

The present document is part of an Integration Reference Point (IRP) named "UTRAN Network Resources IRP", through which an "IRPAgent" (typically an Element Manager or Network Element) can communicate Configuration Management information to one or several "IRPManagers" (typically Network Managers) concerning UTRAN resources. The "UTRAN Network Resources IRP" comprises a set of specifications defining Requirements, a protocol neutral Network Resource Model (NRM) and corresponding Solution Set(s).

The present document

1. specifies the protocol neutral UTRAN Network Resources IRP: Network Resource Model. It reuses relevant parts of the generic NRM in TS 32.622 [16], either by direct reuse or sub-classing, and in addition to that defines UTRAN specific Managed Object Classes.

The Configuration Management (CM) area is very large. The intention is to split the specification of the related interfaces in several IRPs – as described in the Introduction clause above. An important aspect of such a split is that the Network Resource Models (NRMs) defined in different IRPs containing NRMs are consistent, and that NRMs supported by an IRPAgent implementation can be accessed as one coherent model through one IRP Information Service.

To summarize, the present document has the following main purpose:

(1) to define the applied UTRAN specific Network Resource Model, based on the generic NRM in TS 32.622 [16].

In order to access the information defined by this NRM, an IRP Information Service (IS) is needed, such as the Basic CM IRP: IS (TS 32.602 [17]) or the Bulk CM IRP: IS (TS 32.612 [18]). However, which Information Service that is applicable is outside the scope of this document.

Finally, regarding the support of the State Management IRP: IS (TS 32.672 [8]), all NRM's of one release shall support the same State Management IRP version. This NRM specification is related to 3GPP TS 32.672 V5.0.X.

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 32.101: "3G Telecom Management principles and high level requirements".

[2] 3GPP TS 32.102: "3G Telecom Management architecture".

[3] 3GPP TS 23.003: "Numbering, addressing and identification".

[4] 3GPP TS 25.401: "UTRAN Overall Description"

[5] 3GPP TS 25.433: "UTRAN Iub Interface NBAP Signalling"

[6] 3GPP TS 25.423: "UTRAN Iur Interface RNSAP Signalling"

[7] ITU-T Recommendation X.710 (1991): "Common Management Information Service Definition for CCITT Applications".

[8] 3GPP TS 32.672: "Configuration Management (CM); State Management Integration Reference Point (IRP): Information service".

[9] Void

[10] Void

[11] 3GPP TS 32.111-2: "Fault Management (FM); Part 2: Alarm Integration Reference Point (IRP); Information service".

[12] Void

[13] 3GPP TS 32.300: "Configuration Management (CM); Name convention for Managed Objects".

[14] 3GPP TS 32.600: "Configuration Management (CM); Concept and main requirements".

[15] 3GPP TS 23.002: "Network Architecture".

[16] 3GPP TS 32.622: "Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[17] 3GPP TS 32.602: "Configuration Management (CM); Basic CM Integration Reference Point (IRP) information model".

[18] 3GPP TS 32.612: "Configuration Management (CM); Bulk CM Integration Reference Point (IRP); Information service".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply. For terms and definitions not found here, please refer to 3GPP TS 32.101 [1], 3GPP TS 32.102 [2] and 3GPP TS 32.600 [14].

Association: In general it is used to model relationships between Managed Objects. Associations can be implemented in several ways, such as:

(1) name bindings,

(2) reference attributes, and

(3) association objects.

This IRP stipulates that containment associations shall be expressed through name bindings, but it does not stipulate the implementation for other types of associations as a general rule. These are specified as separate entities in the object models (UML diagrams).

Managed Element (ME): An instance of the Managed Object Class ManagedElement defined in [16].

Managed Object (MO): In the context of the present document, a Managed Object (MO) is a software object that encapsulates the manageable characteristics and behaviour of a particular Network Resource. The MO is instance of a MO class defined in a MIM/NRM. This class, called **Information Object Class (IOC)**has attributes that provide information used to characterize the objects that belong to the class (the term “attribute” is taken from TMN and corresponds to a “property” according to CIM). Furthermore, the IOC can have operations that represent the behaviour relevant for that class (the term “operation” is taken from TMN and corresponds to a “method” according to CIM). The IOC may support the emission of notifications that provide information about an event occurrence within a network resource.

Management Information Model (MIM): Also referred to as NRM – see the definition below.

Network Resource Model (NRM): A model representing the actual managed telecommunications network resources that a System is providing through the subject IRP. An NRM identifies and describes the IOCs, their associations, attributes and operations. The NRM is also referred to as “MIM” (see above), which originates from the ITU-T TMN.

Node B: A logical node responsible for radio transmission/reception in one or more cells to/from the User Equipment. It terminates the Iub interface towards the RNC.

3.2 Abbreviations

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

CIM	Common Information Model
DN	Distinguished Name (see 3GPP TS 32.300 [13])
EM	Element Manager
FM	Fault Management
IOC	Information Object Class
IRP	Integration Reference Point
ITU-T	International Telecommunication Union, Telecommunication Sector
Iub	Interface between RNC and Node B
ME	Managed Element
MIM	Management Information Model
MO	Managed Object
MOC	Managed Object Class
NE	Network Element
NM	Network Manager
NR	Network Resource
NRM	Network Resource Model
PM	Performance Management
RDN	Relative Distinguished Name (see 3GPP TS 32.300 [13])
RNC	Radio Network Controller
TMN	Telecommunications Management Network
UML	Unified Modelling Language
UMTS	Universal Mobile Telecommunications System
UTRAN	UMTS Terrestrial Radio Access Network

4 System overview

4.1 System context

Figure 4.1 and 4.2 identify system contexts of the IRP defined by the present document in terms of its implementation called IRPAgent and the user of the IRPAgent, called IRPManager. For a definition of IRPManager and IRPAgent, see 3GPP TS 32.102 [2].

The IRPAgent implements and supports this IRP. The IRPAgent can reside in an Element Manager (EM; for definition see 3GPP TS 32.101 [1]) or a Network Element (NE) (see also [2] clause 8). In the former case, the interface (represented by a thick dotted line) between the EM and the NEs is not the subject of this IRP.

The IRPAgent implements and supports the Basic CM IRP. The IRPAgent can be an Element Manager (EM) or a mediator that interfaces one or more NEs (see Figure 4.1), or it can be a Network Element (NE) (see Figure 4.2). In the former case, the interfaces (represented by a thick dotted line) between the EM and the NEs are not subject of this IRP.

An IRPManager using this IRP shall choose one of the two System Contexts defined here, for each NE. For instance, if an EM is responsible for managing a number of NEs, the NM shall access this IRP through the EM and not directly to those NEs. For another IRP though, the System Context may be different.

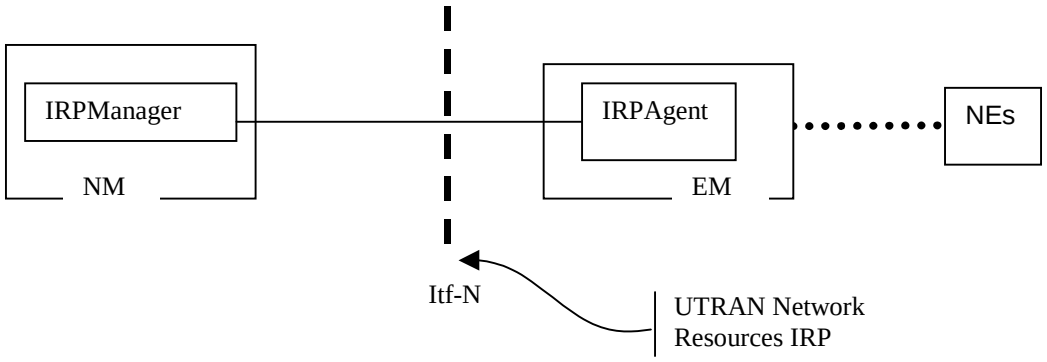


Figure 4.1: System Context A

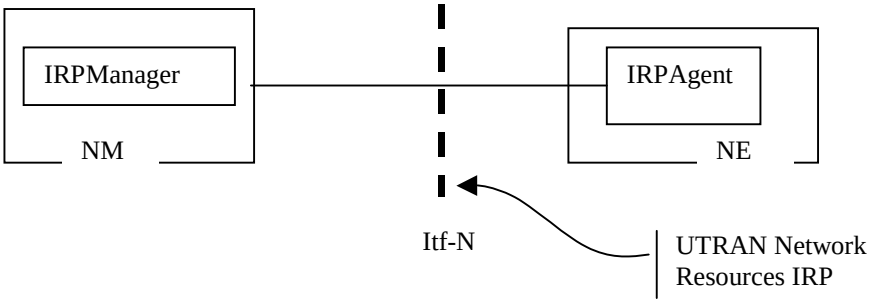


Figure 4.2: System Context B

4.2 Compliance rules

For general definitions of compliance rules related to qualifiers (Mandatory/Optional/Conditional) for *operations*, *notifications and parameters* (of operations and notifications) please refer to 3GPP TS 32.102 [2].

The following defines the meaning of Mandatory and Optional IOC attributes and associations between IOCs, in Solution Sets to the IRP defined by the present document.

Solution Sets to the Basic CM IRP:

- The IRPManager shall support all mandatory attributes/associations. The IRPManager shall be prepared to receive information related to mandatory as well as optional attributes/associations without failure; however the IRPManager does not have to support handling of the optional attributes/associations.
- The IRPAgent shall support all mandatory attributes/associations. It may support optional attributes/associations.

An IRPAgent that incorporates vendor-specific extensions shall support normal communication with a 3GPP SA5-compliant IRPManager with respect to all Mandatory and Optional managed object classes, attributes, associations, operations, parameters and notifications without requiring the IRPManager to have any knowledge of the extensions.

Given that

- rules for vendor-specific extensions remain to be fully specified, and
- many scenarios under which IRPManager and IRPAgent interwork may exist,

it is recognised that in Release 4/5 the IRPManager, even though it is not required to have knowledge of vendor-specific extensions, may be required to be implemented with an awareness that extensions can exist and behave accordingly.

5 Modelling approach

The modelling approach adopted and used in this IRP is described in the Generic Network Resources IRP: NRM [16].

6 IRP Information Model

6.1 Information entities imported and local labels

None.

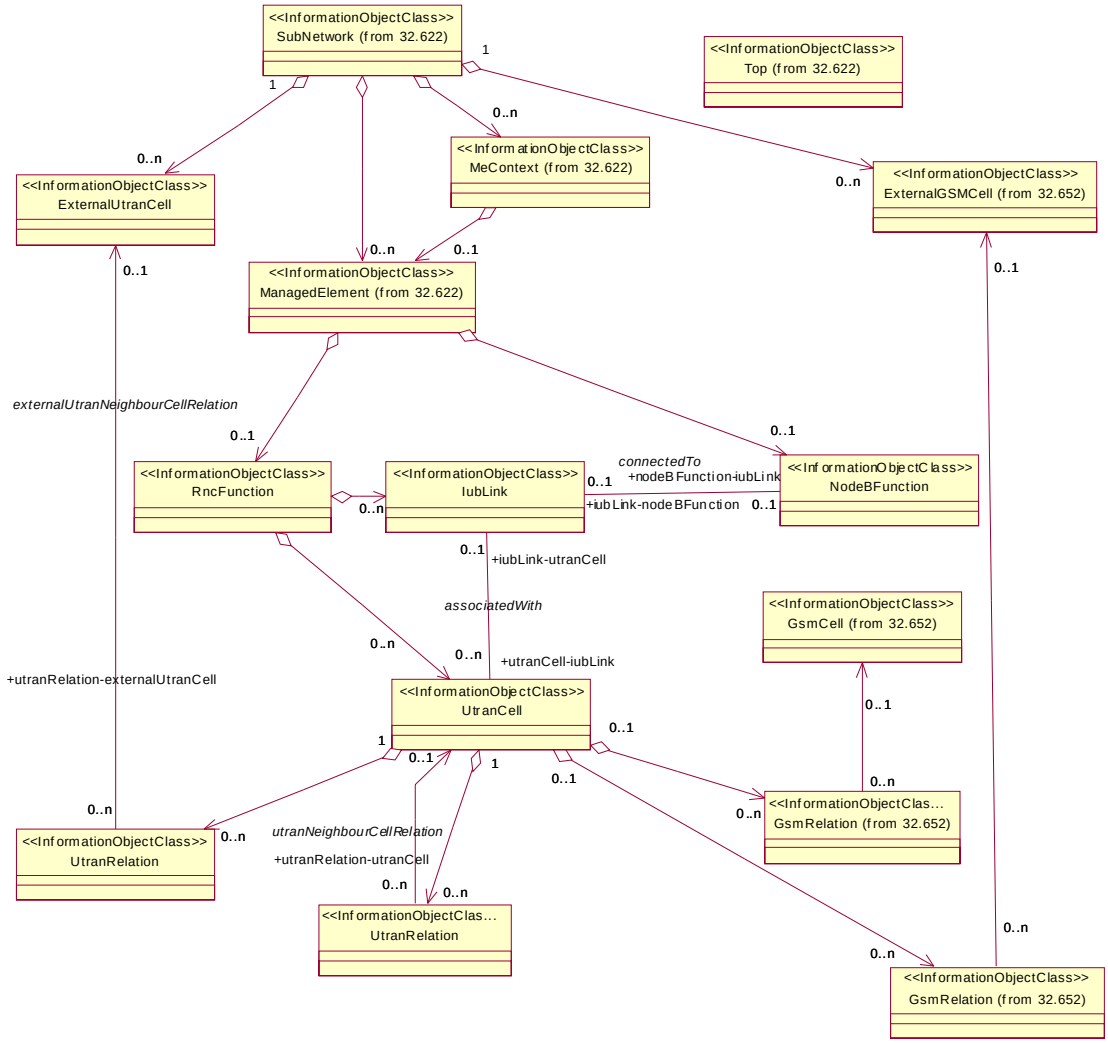
6.2 Class diagram

6.2.1 Attributes and relationships

This subclause depicts the set of IOCs that encapsulate information relevant for this service. This subclause provides the overview of all information object classes in UML. Subsequent subclauses provide more detailed specification of various aspects of these information object classes.

Figure 6.2.1.1 show the name-containment relation and other types of relations of the UTRAN NRM.

NOTE: The name-containment relations between IOCs are indicated by UML “unidirectional aggregation by reference” (“hollow diamonds”).



NOTE 1: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios.

NOTE 2 : The relation between GsmRelation and GsmCell is optional. It may be present if both the UtranCell and the GsmCell are managed by the same management node.

NOTE 3: The UtranRelation and GeranRelation can be name-contained under IOCs defined in other NRMs.

Figure 6.2.1.1: UTRAN NRM Containment/Naming and Association diagram

Each IOC is identified with a Distinguished Name (DN) according to 3GPP TS 32.300 [13] that expresses its containment hierarchy. As an example, the DN of a IOC representing a cell could have a format like:

SubNetwork=Sweden,meContext=MEC-Gbg-1,ManagedElement=RNC-Gbg-1, rncFunction=RF-1,utranCell=Gbg-1.

6.2.2 Inheritance

This sub-clause depicts the inheritance relationships that exist between IOCs.

Figure 6.2.2 shows the inheritance hierarchy for the UTRAN NRM.

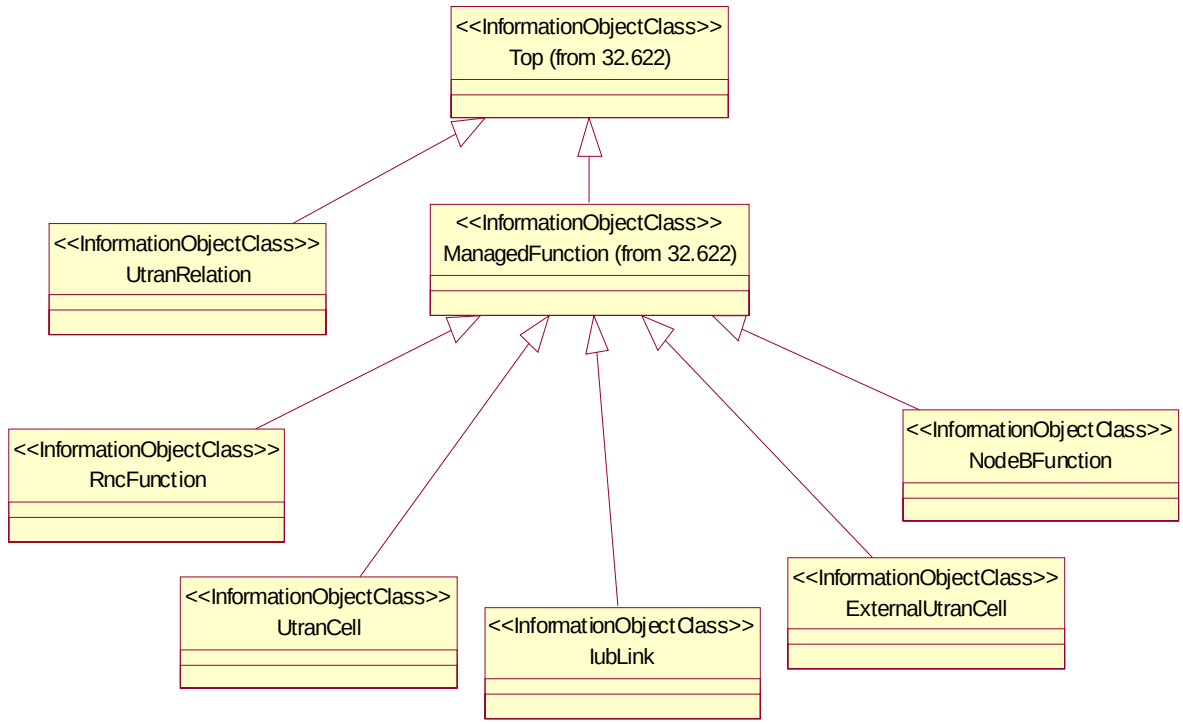
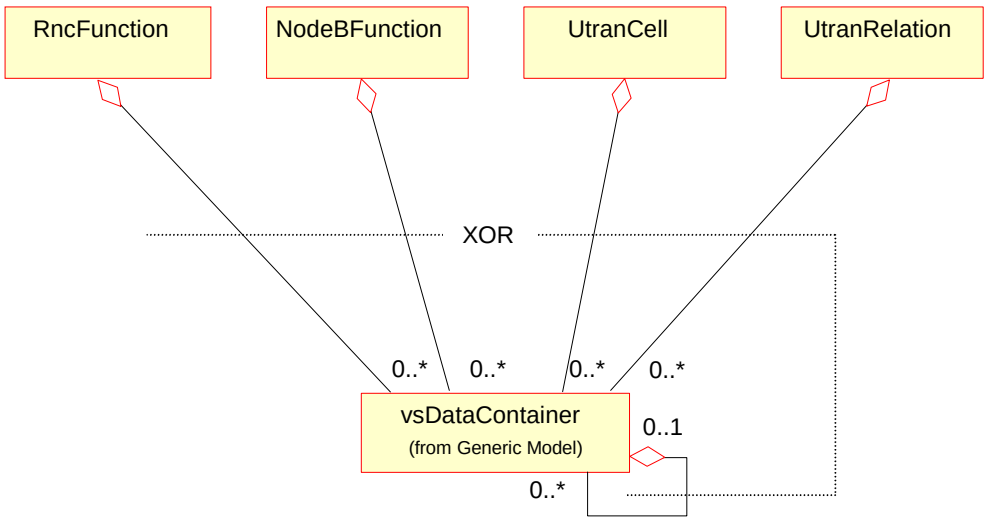


Figure 6.2.2: UTRAN NRM Inheritance Hierarchy



NOTE 1: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios.

NOTE 2: Each instance of the vsDataContainer shall only be contained under one MOC. The vsDataContainer can be contained under MOCs defined in other NRMs.

Figure 6.3: vsDataContainer Containment/Naming and Association in UTRAN NRM diagram

The vsDataContainer is only used for the Bulk CM IRP.

6.3 Information object classes definition

6.3.1 RncFunction

6.3.1.1 Definition

This IOC represents RNC functionality. For more information about the RNC, see 3GPP TS 23.002 [15].

6.3.1.2 Attributes

Table 1: Attributes of RncFunction

Attribute name	Visibility	Support Qualifier	Read Qualifer	Write Qualifier
rncFunctionId	+	M	M	-
userLabel	+	M	M	M
mcc	+	M	M	M
mnc	+	M	M	M
rncId	+	M	M	M

6.3.2 NodeBFunction

6.3.2.1 Definition

This IOC represents Node B functionality. For more information about the Node B, see 3GPP TS 23.002 [15].

6.3.2.2 Attributes

Table 2: Attributes of NodeBFunction

Attribute name	Visibility	Support Qualifier	Read Qualifer	Write Qualifier
nodeBFunctionId	+	M	M	-
userLabel	+	M	M	M
nodeBFunction-IubLink	+	M	M	-

6.3.3 UtranCell

6.3.3.1 Definition

This IOC represents a radio cell controlled by the RNC. For more information about radio cells, see 3GPP TS 23.002 [15].

6.3.3.2 Attributes

Table 3: Attributes of UtranCell

Attribute name	Visibility	Support Qualifier	Read Qualifer	Write Qualifier
utranCellId	+	M	M	-
userLabel	+	M	M	M
cId	+	M	M	M
localCellId	+	M	M	M
uarfcnUl	+	M	M	M
uarfcnDl	+	M	M	M
primaryScramblingCode	+	M	M	M
primaryCpichPower	+	M	M	M
maximumTransmissionPower	+	M	M	M
primarySchPower	+	M	M	M
secondarySchPower	+	M	M	M
bchPower	+	M	M	M
lac	+	M	M	M
rac	+	M	M	M
sac	+	M	M	M
ura	+	M	M	M
utranCell-IubLink	+	M	M	-

Table 3a: Additional attributes of UtranCell for the support of the State Management IRP

Attribute Name	Support Qualifier	READ	WRITE
operationalState	O	M	_
NOTE: No state propagation shall be implied.			

6.3.4 IubLink

6.3.4.1 Definition

This IOC representsthe logical link to a Node B as seen from the RNC. For more information about the RNC, see 3GPP TS 23.002 [15].

6.3.4.2 Attributes

Table 4: Attributes of IubLink

Attribute name	Visibility	Support Qualifier	Read Qualifer	Write Qualifier
iubLinkId	+	M	M	-
userLabel	+	M	M	M
iubLink-UtranCell	+	M	M	M
iubLink-NodeBFunction	+	M	M	-

6.3.5 UtranRelation

6.3.5.1 Definition

The "UtranRelation" IOC contains radio network related parameters for the relation to the "UtranCell" or "ExternalUtranCell" IOC.

NOTE: In handover relation terms, the cell containing the UTRAN Relation object is the source cell for the handover. The cell referred to in the UTRAN relation object is the target cell for the handover. This defines a one-way handover relation where the direction is *from* source cell *to* target cell.

6.3.5.2 Attributes

Table 5: Attributes of UtranRelation

Attribute name	Visibility	Support Qualifier	Read Qualifer	Write Qualifier
utranRelationId	+	M	M	-
relationType	+	M	M	M
adjacentCell	+	M	M	M
uarfcnUl	+	O	M	-
uarfcnDl	+	O	M	-
primaryScramblingCode	+	O	M	-
primaryCpichPower	+	O	M	-
lac	+	O	M	-

6.3.5.3 Attribute constraints

The optionally attributes uarfcnUl, uarfcnDl, primaryScramblingCode, primaryCpichPower and lac shall be included if the EM does not guarantee consistency between the cell definition and what is broadcast on system information. Otherwise they shall not be included.

6.3.6 ExternalUtranCell

6.3.6.1 Definition

This IOC represents a radio cell controlled by another IRPAgent. This IOC has necessary attributes for inter-system handover. It contains a subset of the attributes of related IOCs controlled by another IRPAgent. The way to maintain consistency between the attribute values of these two IOCs is outside the scope of this document.

6.3.6.2 Attributes

Table 6: Attributes of ExternalUtranCell

Attribute name	Visibility	Support Qualifier	Read Qualifer	Write Qualifier
externalUtranCellId	+	M	M	-
userLabel	+	M	M	M
cId	+	M	M	M
mcc	+	M	M	M
mnc	+	M	M	M
rncId	+	M	M	M
uarfcnUl	+	M	M	M
uarfcnDl	+	M	M	M
primaryScramblingCode	+	M	M	M
primaryCpichPower	+	M	M	M
lac	+	M	M	M
rac	+	M	M	M

6.4 Information relationships definition

6.4.1 ConnectedTo (M)

6.4.1.1 Definition

This represents a bi-directional relationship between the IubLink and Node B (through the NodeBFunction). Each IOC"s role mapped to an IOC reference. The names of the reference attribute and the role are the same.

6.4.1.2 Roles

Table 7: Roles of the relation ConnectedTo

Name	Definition
iubLink-nodeBFunction	This role (when present) represents IubLink capability to identify one NodeBFunction. When the role is absent, the IubLink.iubLink-nodeBFunction shall contain no information. When present, it shall contain one NodeBFunction DN.
nodeBFunction-iubLink	This role (when present) represents NodeBFunction capability to identify one IubLink. When the role is absent, the NodeBFunction.nodeBFunction-iubLink shall contain no information. When present, it shall contain one IubLink DN.

6.4.1.3 Constraints

When a particular IubLink identifies a particular NodeBFunction, that particular NodeBFunction must identify the particular IubLink.

6.4.2 AssociatedWith (M)

6.4.2.1 Definition

This represents a bi-directional relation between the IubLink and UtranCell. The role of the IOC shall be mapped to a reference attribute of the IOC. The name of the reference attribute shall be the role name.

This represents a bi-directional relation between the IubLink and UtranCell. The role of the IOC shall be mapped to a reference attribute of the IOC

6.4.2.2 Roles

Table 8: Roles of the relation AssociatedWith

Name	Definition
iubLink-utranCell	This role (when present) represents IubLink capability to identify the set of related UtranCell. IubLink.iubLink-utranCell shall carry the set of UtranCell"s DN(s).
utranCell-iubLink	This role (when present) represents UtranCell capability to identify one related IubLink. When the role is absent, the UtranCell.utranCell-iubLink shall contain no information. When it is present, it shall contain one IubLink DN.

6.4.2.3 Constraints

When a particular IubLink identifies a particular UtranCell, that particular UtranCell must have identified the particular IubLink.

6.4.3 ExternalUtranNeighbourCellRelation (M)

6.4.3.1 Definition

This represents a unidirectional relation from UtranRelation to the ExternalUtranCell. The role of the IOC shall be mapped to a reference attribute, named adjacentCell, of the IOC.

6.4.3.2 Roles

Table 9: Roles of the relation ExternalUtranNeighbourCellRelation

Name	Definition
utranRelation-externalUtranNeighbourCell	This role (when present) represents UtranRelation capability to identify one ExternalUtranCell. When this role is present, the UtranRelation.adjacentCelll shall contain one ExternalUtranNeighbourCell DN.

6.4.3.3 Constraints

This role (for a particular UtranRelation) shall be present if the UtranNeighbourCellRelation of this particular UtranRelation is absent. This role shall be absent if the UtranNeighbourCellRelation of this particular UtranRelation is present.

6.4.4 UtranNeighbourCellRelation (M)

6.4.4.1 Definition

This represents the unidirectional relation from the UtranRelation to UtranCell. The role of the IOC shall be mapped to a reference attribute, named adjacentCell, of the IOC.

6.4.4.2 Roles

Table 10: Roles of the relation UtranNeighbourCellRelation

Name	Definition
utranRelation-utranNeighbourCell	This role (when present) represents UtranRelation capability to identify one UtranCell. When this role is present, the UtranRelation.adjacentCell shall contain one UtranCell DN.

6.4.4.3 Constraints

This role (for a particular UtranRelation) shall be present if the ExternalUtranNeighbourCellRelation of this particular UtranRelation is absent. This role shall be absent if the ExternalUtranNeighbourCellRelation of this particular UtranRelation is present.

6.5 Information attributes definition

6.5.1 Definition and legal values

The table below defines the attributes that are present in several Information Object Classes (IOCs) of this TS.

Table 11: Attributes

Attribute Name	Definition	Legal Values
adjacentCell	It carries the DN of the UtranCelll or the ExternalUtranCell.	
bchPower	The power of the broadcast channel in the cell (Ref. 3 GPP TS 25.433 [5]).	Type: Numeric value Range: (-35..+15 dB) Steps of 0.1dB
cId	Cid is the identifier of a cell in one RNC (Ref. 3 GPP TS 25.401 [4]),], 3 GPP TS 25.433 [5]).	Type: Integral numeric value Range: (0…65535)
externalUtranCellId	An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
iubLinkId	An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
lac	IOCs **UtranCell** and **ExternalUtranCell**: Location Area Code, LAC (Ref. 3 GPP TS 23.003 [3]). IOC **UtranRelation**: Location Area Code, LAC (Ref. 3 GPP TS 23.003 [3]), for another UTRAN cell or the external UTRAN Cell that is broadcast in the system information in the Cell.	Type: Integral numeric value Range: (1.. 65533, 65535)
localCellId	Local Cell id is used to uniquely identify the set of resources defined in a Node B to support a cell (as defined by a Cid Ref. 3 GPP TS 25.401 [4]), 3 GPP TS 25.433 [5]). It must be unique in Node B at a minimum, but may be unique in UTRAN. It can be used to tie the cell in the RNC to a specific set of resources in the Node B.	Type: Integral numeric value Range: (0…268435455)
maximumTransmissionPower	The maximum transmission power of a cell, DL Power (Ref. 3 GPP TS 25.433 [5]).	Type: Numeric value Range: (0,..50 dBm) Steps of 0.1 dB
mcc	Mobile Country Code, MCC (part of the PLMN Id, Ref. 3 GPP TS 23.003 [3]).	
mnc	Mobile Network Code, MNC (part of the PLMN Id, Ref. 3 GPP TS 23.003 [3]).	
nodeBFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
primaryCpichPower	IOCs **UtranCell** and **ExternalUtranCell**: The power of the primary CPICH channel in the cell (Ref. 3 GPP TS 25.433 [5]). IOC **UtranRelation**: The power of the primary CPICH channel in the cell (Ref. 3 GPP TS 25.433 [5]), for another UTRAN cell or the external UTRAN Cell that is broadcast in the system information in the Cell.	Type: Numeric value Range: (-10,..,50 dBm) Steps of 0.1 dB
primarySchPower	The power of the primary synchronisation channel in the cell, DL Power (Ref. 3 GPP TS 25.433 [5]).	Type: Numeric value Range: (-35..+15 dB) Steps of 0.1dB
primaryScramblingCode	IOCs **UtranCell** and **ExternalUtranCell**: The primary DL scrambling code used by the cell (Ref. 3 GPP TS 25.433 [5]). IOC **UtranRelation**: The primary DL scrambling code used by the cell (Ref. 3 GPP TS 25.433 [5]), for another UTRAN cell or the external UTRAN Cell that is broadcast in the system	Type: Integral numeric value Range: (0 – 511)

Attribute Name	Definition	Legal Values
	information in the Cell.	
rac	Routing Area Code, RAC (Ref. 3 GPP TS 23.003 [3]).	Type: Integral numeric value Range: (0..255)
relationType	Type of relation: e.g. Intersystem relation, intrafrequency intrasystem relation, interfrequency intrasystem relation.	
rncFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
rncId	IOC **ExternalUtranCell**: Unique RNC ID for the drift RNC (Ref. 3 GPP TS 23.003 [3]). IOC **RncFunction**: Unique RNC ID (Ref. 3 GPP TS 23.003 [3])	
sac	Service Area Code, SAC (Ref. 3 GPP TS 23.003 [3]).	Type: Integral numeric value Range: (0.. 65535)
secondarySchPower	The power of the secondary synchronisation channel in the cell, DL Power (Ref. 3 GPP TS 25.433 [5]).	Type: Numeric value Range: (-35..+15 dB) Steps of 0.1dB
uarfcnDl	IOCs **UtranCell** and **ExternalUtranCell**: The DL UTRA absolute Radio Frequency Channel number, UARFCN (Ref. 3 GPP TS 25.433 [5]). IOC **UtranRelation**: The DL UTRA absolute Radio Frequency Channel number, UARFCN (Ref. 3 GPP TS 25.433 [5]), for another UTRAN cell or the external UTRAN Cell that is broadcast in the system information in the Cell.	The channel number should correspond to a frequency in the downlink band, range 2110 MHz – 2170 MHz, or 1930 MHz – 1990 MHz for ITU Region 2. (Ref. 3GPP TS 25.101). Type: Integral numeric value Range: (10562 - 10838) or (9662 - 9938)
uarfcnUl	IOCs **UtranCell** and **ExternalUtranCell**: The UL UTRA absolute Radio Frequency Channel number, UARFCN (Ref. 3 GPP TS 25.433 [5]). IOC **UtranRelation**: The UL UTRA absolute Radio Frequency Channel number, UARFCN (Ref. 3 GPP TS 25.433 [5]) for another UTRAN cell or the external UTRAN Cell, that is broadcast in the system information in the Cell	The channel number should correspond to a frequency in the uplink band, range 1920 MHz – 1980 MHz, or 1850 MHz - 1910 MHz for ITU Region 2. (Ref. 3GPP TS 25.101) Type: Integral numeric value Range: (9612 - 9888) or (9262 – 9538)
ura	UTRAN Registration Area, URA (Ref. 3 GPP TS 25.423 [6]).	Type: Integral numeric value Range: (0..65535)
userLabel	A user-friendly (and user assigned) name of the associated object. Inherited from ManagedFunction.	
utranCellId	An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
utranRelationId	An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	

6.5.2 Constraints

None.

6.6 Particular information configurations

Not applicable.

Annex A (informative): Supported UTRAN network configurations

Figure A.1 depicts four typical network configurations, which are supported by the UTRAN NRM over the Itf-N. However, this does not preclude support for other configurations.

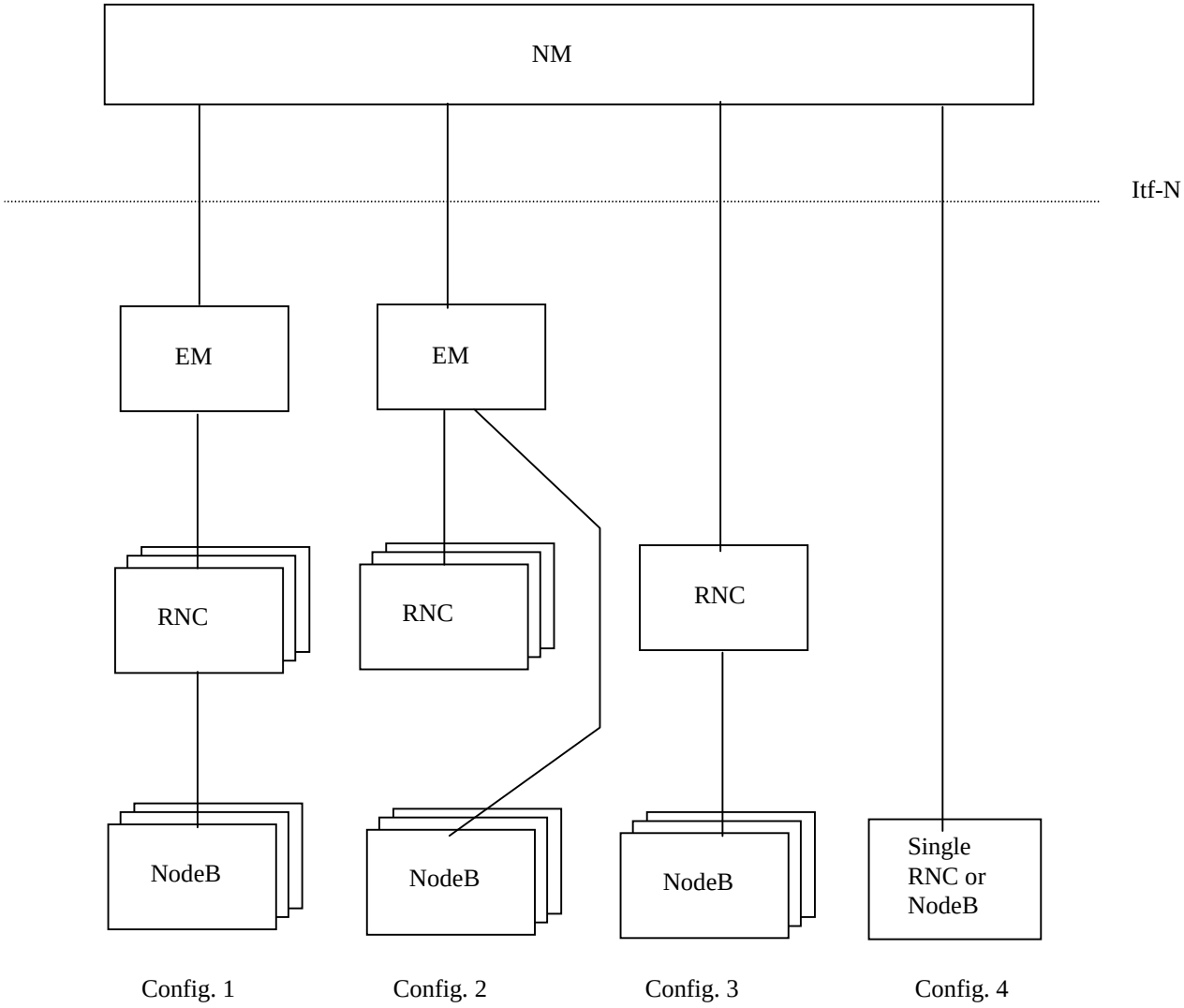


Figure A.1: Typical network configurations supported by the UTRAN NRM

Table A.1 shows the possible number of instances for each network configuration (counted from left to right in figure A.1.):

Table A.1: Number of instances for each example configuration in figure A.1

MOC	Config. 1	Config. 2	Config. 3	Config. 4
SubNetwork	1	1	1	0..1
ManagementNode	1	1	0	0
ManagedElement	1..N	1..N	1..N	1
MeContext	0..M	0..M	0..M	0..1
RncFunction	0..P	0..P	0..1	0..1
NodeBFunction	0..Q	0..Q	0..(N-1)	0..1
IubLink	0..Q	0..Q	0..(N-1)	0
UtranCell	0..R	0..R	0..R	0..R
IRPAgent	1	1	1	1
NotificationIRP	1	1	1	1
AlarmIRP	0..1	0..1	0..1	0..1
BasicCmIRP	0..1	0..1	0..1	0..1

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2001	S_12	SP-010283	--	--	Approved at TSG SA #12 and placed under Change Control	2.0.0	4.0.0
Jun 2002	S_16	SP-020303	001	--	Corrections of reference in figure 6.2 and of attribute descriptions in UtranRelation in 32.642 (UTRAN network resources IRP: NRM)	4.0.0	4.1.0
Jun 2002	S_16	SP-020304	002	--	Correction of supported IRP in system context	4.0.0	4.1.0
Sep 2002	S_17	SP-020490	003	--	UML corrections	4.1.0	4.2.0
Sep 2002	S_17	SP-020492	004	--	Add the new IRP IS methodology defined in 32.102	4.2.0	5.0.0
Sep 2002	S_17	SP-020492	005	--	Add State Management	4.2.0	5.0.0
Dec 2002	S_18	SP-020748	006	--	Inclusion of valid values and ranges for UTRAN Cell parameters	5.0.0	5.1.0
Jan 2003	--	--	--	--	Accepted all revision marks	5.1.0	5.1.1

History

Document history		
V5.0.0	September 2002	Publication
V5.1.1	December 2002	Publication