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Technical Specification

Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Evolved Universal Terrestrial Radio Access Network (E-UTRAN)
Network Resource Model (NRM)
Integration Reference Point (IRP): Information Service (IS)
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Foreword

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Contents

Foreword

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

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Introduction

The present document is part of a TS-family covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; as identified below:

32.761	E-UTRAN Network Resource Model (NRM) Integration Reference Point (IRP): Requirements
32.762	**E-UTRAN Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)**
32.763	E-UTRAN Network Resource Model (NRM) Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)
32.765	E-UTRAN Network Resource Model (NRM) Integration Reference Point (IRP): eXtensible Markup Language (XML) file format definition

1 Scope

The present document is part of an Integration Reference Point (IRP) named E-UTRAN Network Resource Model (NRM) IRP, through which an `IRPAgent` can communicate configuration management information to one or several `IRPManagers` concerning E-UTRAN resources. The E-UTRAN NRM IRP comprises a set of specifications defining Requirements, a protocol neutral Information Service and one or more Solution Set(s).

The present document specifies the protocol neutral E-UTRAN NRM IRP: Information Service (IS). It reuses relevant parts of the Generic NRM IRP: IS in 3GPP TS 32.622 [6], either by direct reuse or sub-classing, and in addition to that defines E-UTRAN specific Information Object Classes.

In order to access the information defined by this NRM, an Interface IRP such as the "Basic CM IRP" is needed (3GPP TS 32.602 [7]). However, which Interface IRP is applicable is outside the scope of the present document.

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: "Telecommunication management; Principles and high level requirements".

[2] 3GPP TS 32.102: "Telecommunication management; Architecture".

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

[4] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

[5] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".

[6] 3GPP TS 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[7] 3GPP TS 32.602: "Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP) Information Service (IS)".

[8] 3GPP TS 32.612: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP): Information Service (IS)".

[9] 3GPP TS 23.401: "Technical Specification Group Services and System Aspects; General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[10] 3GPP TS 36.331: "Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) Radio Resource Control (RRC); Protocol specification".

[11] 3GPP TS 36.300: " Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 ".

[12] 3GPP TS 36.211: 'Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation'

[13] 3GPP TS 36.101: 'Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception'

[14] 3GPP TS 36.104: 'Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E_UTRA); Base Station (BS) radio transmission and reception'

[15] 3GPP TS 32.500: " Technical Specification Group Services and System Aspects; Telecommunication Management; Self-Organizing Networks (SON); Concepts and requirements"

[16] 3GPP TS 32.150: " Technical Specification Group Services and System Aspects; Telecommunication management; Integration Reference Point (IRP) Concept and definitions"

[17] 3GPP TS 21.905: " Technical Specification Group Services and System Aspects; Vocabulary for 3GPP Specifications"

[18] 3GPP TS 32.111-2: 'Telecommunication management; Fault Management; Part 2: Alarm Integration Reference Point (IRP): Information Service (IS)'

[19] 3GPP TS 23.002: 'Network Architecture'

[20] 3GPP TS 32.652: 'Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP); Network Resource Model (NRM)'

[21] 3GPP TS 32.642: 'Telecommunication management; Configuration Management (CM); UTRAN network resources Integration Reference Point (IRP); Network Resource Model (NRM)'

[22] 3GPP2 S.S0028-D 'OAM&P for cdma2000 (Overview, 3GPP R7 Delta Specification, 3GPP2 Network Resource Model IRP)'

[23] 3GPP TS 32.752: 'Telecommunication management; Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)'

[24] 3GPP TS 36.423: 'Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 application protocol (X2AP)'

[25] 3GPP TS 36.213: 'Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures'

[26] 3GPP TS 32.672: 'Technical Specification Group Services and System Aspects; Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP); Information Service (IS)'

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 32.150 [16], TS 32.101 [1], TS 32.102 [2] and TS 21.905 [17] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TS 32.150 [16], TS 32.101 [1], TS 32.102 [2] and TS 21.905 [17], in that order.

Antenna: Within the present document an Antenna is the set of radiating elements involved in the transmission and reception of Radio Frequency energy to support the Air Interface of a E-UTRAN cell.

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 Information Object Class ManagedElement defined in TS 32.622 [6].

eNodeB: A logical node responsible for radio transmission/reception in one or more cells to/from the User Equipment. It terminates the S1 interface towards the EPC.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TS 32.150 [16], TS 32.101 [1], TS 32.102 [2] and TS 21.905 [17] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TS 32.150 [16], TS 32.101 [1], TS 32.102 [2] and TS 21.905 [17], in that order.

DN	Distinguished Name (see 3GPP TS 32.300 [4])
E-UTRA	Evolved Universal Terrestrial Radio Access
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
ME	Managed Element
MO	Managed Object
NR	Neighbour cell Relation
PM	Performance Management
RDN	Relative Distinguished Name (see 3GPP TS 32.300 [4])

4 System overview

4.1 Compliance rules

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:

- 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 information object classes, attributes and associations 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 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 TS 32.622 [6].

6 Information Object Classes (IOCs)

6.1 Information entities imported and local labels

Label reference	Local label
3GPP TS 32.672 [26], attribute, administrativeState	administrativeState
3GPP TS 32.672 [26], attribute, availabilityStatus	availabilityStatus
3GPP TS 32.672 [26], attribute, operationalState	operationalState
3GPP TS 32.622 [6], IOC, Top	Top
3GPP TS 32.622 [6], IOC, ManagedElement	ManagedElement
3GPP TS 32.622 [6], IOC, SubNetwork	SubNetwork
3GPP TS 32.622 [6], IOC, ManagedFunction	ManagedFunction
3GPP TS 32.622 [6], IOC, Link	Link
3GPP TS 32.622 [6], IOC, EP_RP	EP_RP
3GPP TS 32.752 [23], IOC, MMEFunction	MMEFunction
3GPP TS 32.752 [23], IOC, ExternalMMEFunction	ExternalMMEFunction
3GPP TS 32.642 [21], IOC, UtranRelation	UtranRelation
3GPP TS 32.642 [21], IOC, UtranGenericCell	UtranGenericCell
3GPP TS 32.642 [21], IOC, ExternalUtranGenericCell	ExternalUtranGenericCell
3GPP TS 32.642 [21], IOC, AntennaFunction	AntennaFunction
3GPP TS 32.642 [21], IOC, TmaFunction	TmaFunction
3GPP TS 32.652 [20], IOC, GsmRelation	GsmRelation
3GPP TS 32.652 [20], IOC, GsmCell	GsmCell
3GPP TS 32.652 [20], IOC, ExternalGsmCell	ExternalGsmCell
3GPP2 TS S.S0028 [22], IOC, ExternalSector	ExternalSector

6.2 Class diagram

6.2.1 Attributes and relationships

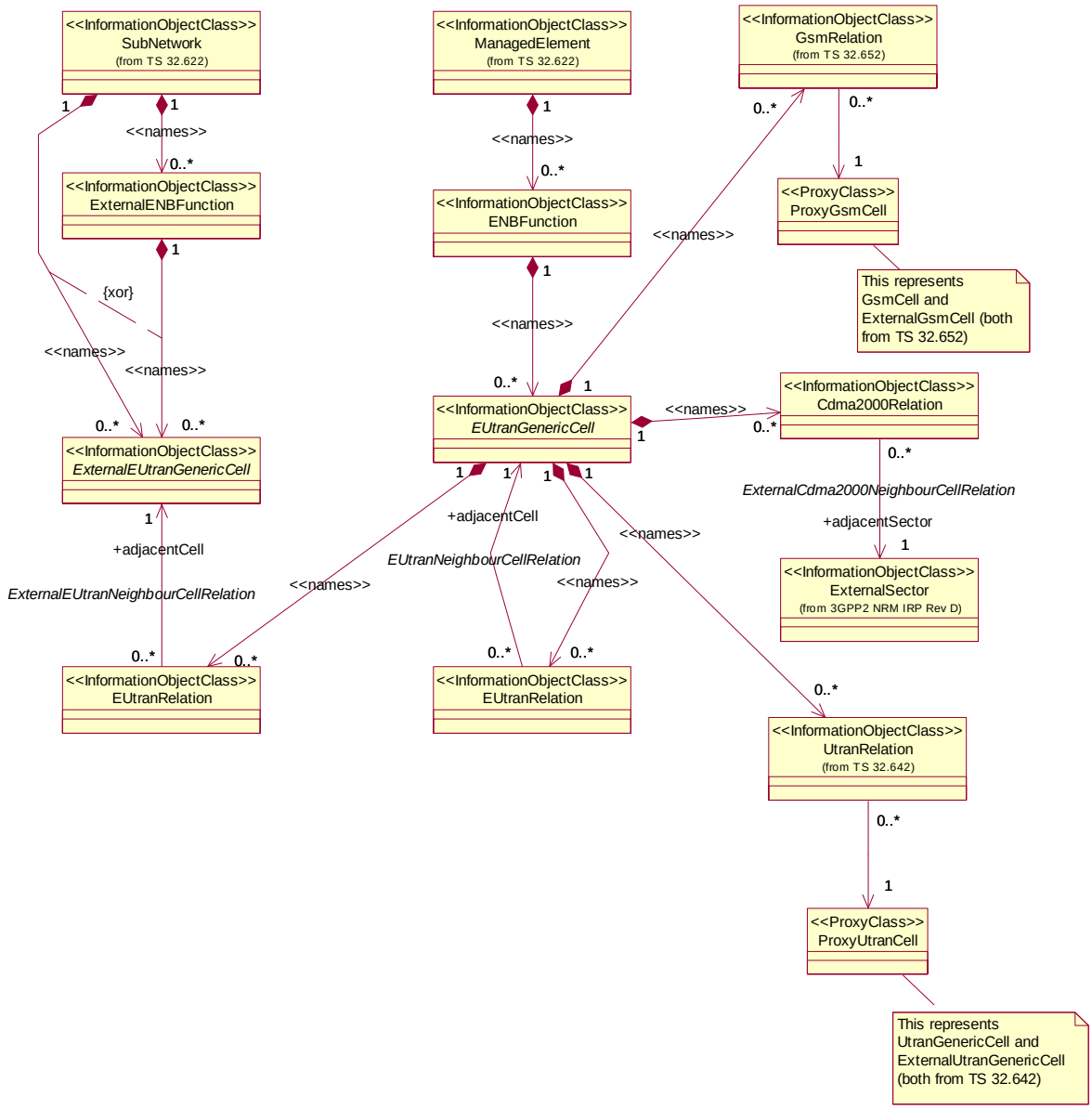

Figure 6.2.1.1: Cell view of EUTRAN NRM

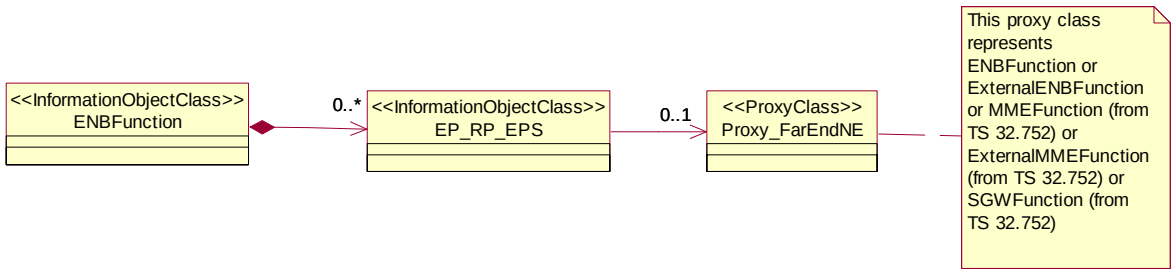

Figure 6.2.1.2: Transport view of EUTRAN NRM

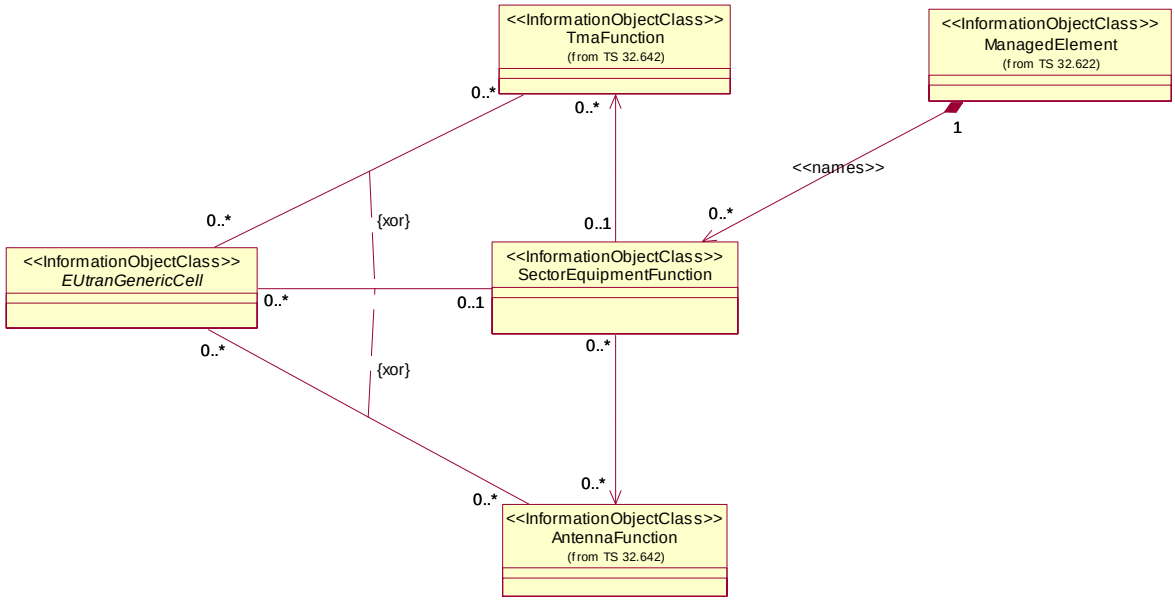

Figure 6.2.1.3: Radio equipment view of EUTRAN NRM

Note 1: Either the `EUtranGenericCell` has a relation to `SectorEquipmentFunction`, or the EUtranGenericCell has relations to `AntennaFunction` and `TMAFunction`.

6.2.2 Inheritance

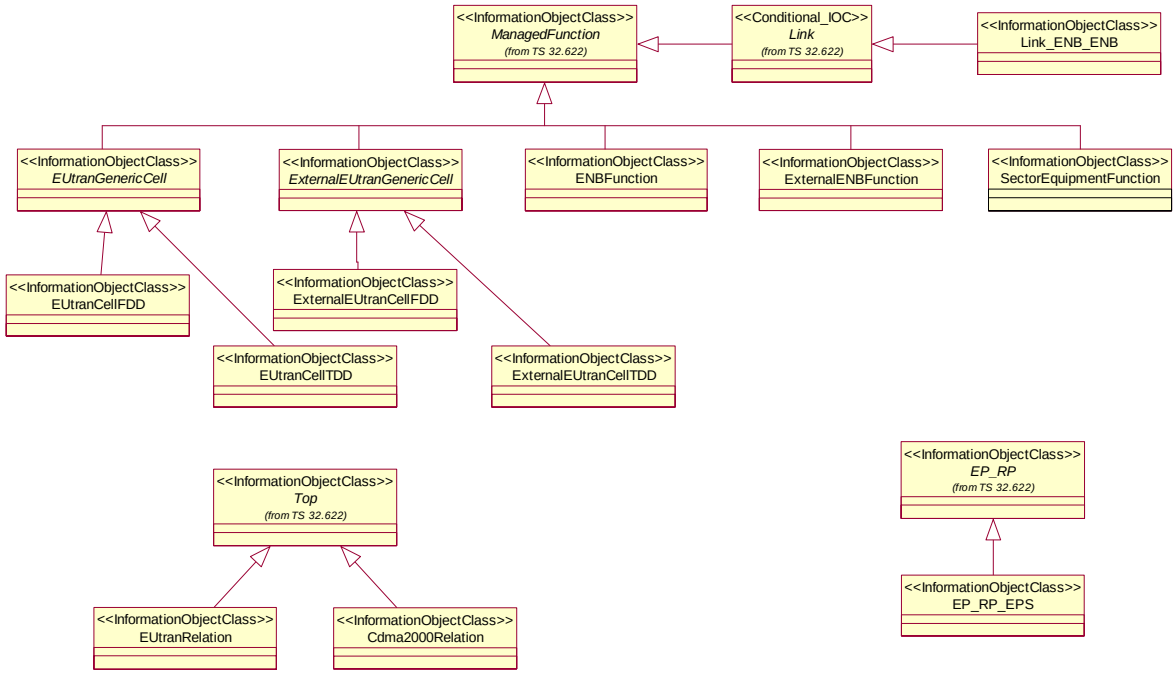

Figure 6.2.2.1: E-UTRAN NRM Inheritance Hierarchy

6.3 Information Object Class (IOC) definitions

6.3.1 ENBFunction

6.3.1.1 Definition

This IOC represents eNB functionality. For more information about the eNB, see 3GPP TS 23.002 [19].

6.3.1.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
id	M	M	-
x2BlackList	CM	M	M
x2WhiteList	CM	M	M
x2HOBlackList	CM	M	M
x2IpAddressList	O	M	-

6.3.1.3 Attribute Constraints

Name	Definition
x2BlackList Support Qualifier	The condition is 'ANR function is supported'.
x2WhiteList Support Qualifier	The condition is 'ANR function is supported'.
x2HOBlackList Support Qualifier	The condition is 'ANR function is supported'.

6.3.1.4 Notification

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [18])	

6.3.2 ExternalENBFunction

6.3.2.1 Definition

This IOC represents an external eNB functionality. For more information about the eNB, see 3GPP TS 23.002 [19].

6.3.2.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
id	M	M	-

6.3.2.3 Attribute Constraints

6.3.2.4 Notification

6.3.3 EUtranGenericCell

6.3.3.1 Definition

This abstract IOC represents the common properties of an E-UTRAN generic cell. For more information about cells, see 3GPP TS 23.401 [9].

6.3.3.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
id	M	M	-
cellIdentity	M	M	M
cellType	M	M	-
cellSize	M	M	M
plmnIdList	M	M	M
tac	M	M	M
pci	M	M	CM
pciList	CM	M	M
maximumTransmissionPower	M	M	CM
referenceSignalPower	O	M	M
pb	O	M	M
partOfSectorPower	CM	M	M

Attribute Name	Support Qualifier	Read Qualifier	Write Qualifier
operationalState	O	M	–
administrativeState	O	M	M
availabilityStatus	O	M	-
NOTE: No state or status propagation shall be implied.			

6.3.3.3 Attribute constraints

Name	Definition
pci CM Write Qualifier	Centralized PCI assignment (see TS 32.500, ref [15] subclause 6.1.6) is supported.
pciList CM Support Qualifier	Distributed PCI assignment (see TS 32.500, ref [15] subclause 6.1.6) is supported.
partOfSectorPower CM support qualifier	The IOC SectorEquipmentFunction is used.
maximumTransmissionPower CM Write Qualifier	The IOC SectorEquipmentFunction is not used.

6.3.3.4 Notification

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyStateChange	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [18])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [18])	

6.3.4 ExternalEUtranGenericCell

6.3.4.1 Definition

This abstract IOC represents the properties of an EUTRAN generic cell controlled by another IRPAgent. This IOC contains necessary attributes for inter-system and intra-system handover. It also contains a subset of the attributes of related IOCs controlled by another IRPAgent. The way to maintain consistency between the attribute values of these IOCs is outside the scope of the present document.

6.3.4.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
id	M	M	-
pci	M	M	M
cellIdentity	M	M	M
plmnIdList	O	M	M

6.3.4.3 Attribute Constraints

6.3.4.4 Notifications

Name	Qualifier	Notes
notifyAttributeValueChange	O	
notifyObjectCreation	O	
notifyObjectDeletion	O	

6.3.5 EUtranCellFDD

6.3.5.1 Definition

This IOC represents the properties of EUTRAN FDD cell.

6.3.5.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
earfcnDl	M	M	M
earfcnUl	M	M	M

6.3.6 ExternalEUtranCellFDD

6.3.6.1 Definition

This IOC represents the common properties of external EUTRAN FDD cell.

6.3.6.2 Attributes

Table 6.3.5.2.1: Attributes of ExternalEUtranCellFDD

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
earfcnDl	M	M	M
earfcnUl	M	M	M

6.3.7 EUtranCellTDD

6.3.7.1 Definition

This IOC represents the properties of EUTRAN cell TDD.

6.3.7.2 Attributes

Note: Attributes are FFS:

6.3.8 ExternalEUtranCellTDD

6.3.8.1 Definition

This IOC represents the common properties of external EUTRAN cell TDD.

6.3.8.2 Attributes

Note: Attributes are FFS:

6.3.9 EUtranRelation

6.3.9.1 Definition

This IOC represents a NR from one EUtranGenericCell instance to another EUtranGenericCell or ExternalEUtranGenericCell instance. NRs are directional.

6.3.9.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
id	M	M	-
tCI	M	M	M
isRemoveAllowed	CM	M	M
isHOAllowed	CM	M	M
adjacentCell	M	M	-

6.3.9.3 Attribute Constraints

Name	Definition
isRemoveAllowed Support Qualifier	The condition is 'ANR function is supported'.
isHOAllowed Support Qualifier	The condition is 'ANR function is supported'.

6.3.10 Link_ENB_ENB

6.3.10.1 Definition

This IOC represents the link between two ENBFunction.

6.3.10.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier

6.3.10.3 Attribute Constraints

Name	Definition

6.3.11 EP_RP_EPS

6.3.11.1 Definition

This IOC represents a generic end point for the EUTRAN system.

6.3.11.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
farEndNeIpAddr	O	M	CM

6.3.11.3 Attribute constraints

Name	Definition
`farEndNeIpAddr"s` write qualifier	When the `EP_RP_EPS object` belongs to the same Domain Manager as the eNB pointed by the `farEndNeIpAddr` attribute, the Write Qualifier of `farEndNeIpAddr` attribute is not needed.

6.3.11.3 Notifications

The common notifications defined in subclause 6.1.6 of 3GPP TS 32.622[6] are valid for this IOC, without exceptions or additions.

6.3.12 SectorEquipmentFunction

6.3.12.1 Definition

This IOC represents a set of cells within a geographical area that has common functions relating to AntennaFunction, TMAFunction and supporting equipment, such as power amplifier.

6.3.12.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
`id`	M	M	-
fqBand	M	M	--
confOutputPower	M	M	M

6.3.13 Cdma2000Relation

6.3.13.1 Definition

This IOC represents a NR from one EUtranGenericCell to a CDMA2000 sector. NRs are directional.

See 3GPP2 TS S.S0028 [22]

6.3.13.2 Attributes

Attribute name	Support Qualifier	Read Qualifier	Write Qualifier
adjacentSector	M	M	-
id	M	M	-

6.3.14 ProxyGsmCell

6.3.14.1 Definition

This definition is a Proxy Class stereotype, proxying either a GsmCell or an ExternalGsmCell. See TS 32.652 [20].

6.3.15 ProxyUtranCell

6.3.15.1 Definition

This definition is a Proxy Class stereotype, proxying either an UtranCell or an ExternalUtranCell. See TS 32.642 [21].

6.4 Information relationship definitions

6.4.1 EUtranNeighbourCellRelation (M)

6.4.1.1 Definition

This association represents the unidirectional Neighbour cell Relation (NR) from the `EUtranGenericCell` containing this `EUtranRelation` to another `EUtranGenericCell`.

6.4.1.2 Roles

Name	Definition
adjacentCell	This role represents the associated `EUtranGenericCell` of an EUtranNeighbourCellRelation.

6.4.1.3 Constraints

Associations EUtranNeighbourCellRelation and ExternalEUtranNeighbourCellRelation are mutually exclusive.

6.4.2 ExternalEUtranNeighbourCellRelation (M)

6.4.2.1 Definition

This association represents the unidirectional Neighbour cell Relation (NR) from the `EUtranGenericCell` containing this `EUtranRelation` to an `ExternalEUtranGenericCell`.

6.4.2.2 Roles

Name	Definition
`adjacentCell`	This role represents the associated `ExternalEUtranGenericCell` of an ExternalEUtranNeighbourCellRelation.

6.4.2.3 Constraints

Associations EUtranNeighbourCellRelation and ExternalEUtranNeighbourCellRelation are mutually exclusive.

6.4.3 ExternalCdma2000NeighbourCellRelation (M)

6.4.3.1 Definition

This association represents the unidirectional Neighbour cell Relation (NR) from the `EUtranGenericCell` containing this `Cdma2000Relation` to an `ExternalSector`.

6.4.3.2 Roles

Name	Definition
`adjacentSector`	This role represents the associated `ExternalSector` of an ExternalCdma2000NeighbourCellRelation.

6.4.3.3 Constraints

6.5 Information attribute definitions

6.5.1 Definition and legal values

Table 6.5.1.1 defines the attributes that are present in several Information Object Classes (IOCs) of the present document.

Table 6.5.1.1: Attributes definitions and legal values

Attribute Name	Definition	Legal Values
adjacentCell	This attribute contains the DN of a EUtranGenericCell or ExternalEUtranGenericCell.	
adjacentSector	This attribute contains the DN of an ExternalSector.	
administrativeState	See Import Table.	
availabilityStatus	See Import Table.	
cellIdentity	Unambiguously identify a cell within a PLMN.	Refer to TS 36.331[10]
cellSize	See cell-Size in TS 36.423 [24].	See cell-Size in TS 36.423 [24].
cellType	Cell type for management	Enumerated {femto, pico, macro}.
confOutputPower	It defines the allowed total power to use for all cells together in this sector. It may be set by the operator and/or limited by HW limitation or licensed power, e.g.: 20, 40, 60, 80,120 watts	
referenceSignalPower	This defines the cell specific downlink reference signal transmit power, which is described in 3GPP TS 36.213[25]	See 3GPP TS 36.331[10]
earfcnUl	Specifies the channel number for the central UL frequency. The mapping from channel number to physical frequency is described in 3GPP specification TS 36.101 [13] subclause 5.7.3.	See EARFCN in TS 36.101 [13] subclause 5.7.3.
earfcnDl	Specifies the channel number for the central DL frequency. The mapping from channel number to physical frequency is described in 3GPP specification TS 36.101 [13] subclause 5.7.3.	See EARFCN in TS 36.101 [13] subclause 5.7.3
farEndNeIpAddr	The IP address(s) of the far end network entity to which the reference point is related. This is an IPv4 or an IPv6 address.	
fqBand	This is the frequency band supported by the hardware associated with the SectorEquipmentFunction. The earfcnDl and earfcnUl of cells associated with the SectorEquipmentFunction must be assigned with value within this fqBand value.	See section 5 Table 5.2-1 'E-UTRA frequency band' of TS 36.104 [14]. Other legal values would be applicable for other technologies such as for UTRA.
id	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
isRemoveAllowed (see note 1)	This indicates if the subject EUtranRelation can be removed (deleted) or not. If "yes", the subject EUtranRelation instance can be removed (deleted). If "no", the subject EUtranRelation instance shall not be removed (deleted) by any entity but an IRPManager.	yes, no

isHOAllowed (see note 1)	This indicates if HO is allowed or prohibited. If "yes", handover is allowed from source cell to target cell. The source cell is identified by the name-containing EUtranGenericCell of the EUtranRelation that has the isHOAllowed. The target cell is referenced by the EUtranRelation that has this isHOAllowed. If "no", handover shall not be allowed.	yes, no
maximumTransmissionPower	This is the maximum possible for all downlink channels, used simultaneously in a cell, added together.	
operationalState	See Import Table.	
partOfSectorPower	This is the requested part (i.e. %) of the total radio power available to the SectorEquipmentFunction. The requested % power should be allocated to the cell.	0 : 100
pb	P_B , which is described in Section 5.2 of TS 36.213 [25]	See 3GPP TS 36.213[25]
pci	This holds the Physical Cell Identity (PCI) of the cell (for both Centralized and Distributed PCI assignment cases). In the case of Centralized PCI assignment, see TS 36.300, [11] subclause 22.3.5, IRPManager signals a specific value by writing this attribute.	See TS 36.211 [12] subclause 6.11 for legal values of pci.
pciList	This holds a list of physical cell identities that can be assigned to the pci attribute by eNB. The assignment algorithm is not specified. This attribute shall be supported if and only if the Distributed PCI Assignment is supported. See TS 32.500, ref [15] subclause 6.1.6.	See TS 36.211 [12] subclause 6.11 for legal values of pci. The number of pci in the list is 1 to 504.
plmnIdList	List of unique identities for PLMN. Note: A cell can broadcast up to 6 PLMN-id's. This is to support the case that one cell can be used by up to 6 operators" core networks. See TS 36.331 [10] section 6.2.2: SystemInformationBlockType1/cellAccessRelatedInformation/plmn-IdentityList is a SEQUENCE (SIZE (1..6))	A list of at most six entries of PLMN Identifiers. The PLMN Identifier is composed of a Mobile Country Code (MCC) and a Mobile Network Code (MNC). See TS 23.003 [3] subclause 2.2 and 12.1.
tac	Common Tracking Area Code for the PLMNs. The identity used to identify tracking areas.	a) It is the Tracking Area Code (TAC). b) A cell can only broadcast one TAC. See TS 36.300 [11], section 10.1.7 (PLMNID and TAC relation). c) TAC is defined in TS 23.003 [3], section 19.4.2.3.
tCI	This is the Target Cell Identifier. It consists of E-UTRAN Cell Global Identifier (ECGI) and Physical Cell Identifier (PCI) of the target cell. The EUtranRelation.tCI identifies the target cell from the perspective of the EUtranGenericCell, the name-containing instance of the subject EUtranRelation instance.	The Target Cell Identifier is defined in TS 36.300 [11]. See TS 36.211 [12] subclause 6.11 for legal values of the PCI.

x2BlackList	This is a list of DNs of ENBFunction. If the target node DN is a member of the source node"s ENBFunction.x2BlackList, the source node is: 1 Prohibited from sending X2 connection request to target node; 2 Forced to tear down established X2 connection to target node 3 Not allowed to accept incoming X2 connection request from target node. The same DN may appear here and in ENBFunction.x2WhiteList. In such case, the DN in x2WhiteList shall be treated as if it is absent.	
x2IpAddressList	Represents one or more IP addresses used by eNBFunction for the X2 Interface	One or more IPv4 or IPv6 addresses
x2WhiteList	This is a list of DNs of ENBFunction. If the target node DN is a member of the source node"s ENBFunction.x2WhiteList, the source node : - Is allowed to request the establishment of X2 connection with the target node; - Is not allowed to initiate the tear down of established X2 connection to target node The same DN may appear here and in ENBFunction.x2BlackList. In such case, the DN here shall be treated as if it is absent.	
x2HOBlackList	This is a list of DNs of ENBFunction. The ENBFunction.x2HOBlackList identifies a list of neighbour ENBFunction with whom the subject ENBFunction is prohibited to use X2 interface for HOs even if the X2 interface exists between them.	

NOTE: Attributes isRemoveAllowed and isHOAllowed each has 2 legal values, allow (A) and prohibited (P). The two attributes are semantically equivalent to one attribute with 4 legal values such as:

hOAllow; hOProhibited; hOWhiteListed; hOBlackListed;

where

- hOAllow == isRemoveAllowed is A and isHOAllowed is A;
- hOProhibited == isRemoveAllowed is A and isHOAllowed is P;
- hOWhiteListed == isRemoveAllowed is P and isHOAllowed is A;
- hOBlackListed == isRemoveAllowed is P and isHOAllowed is P.

Therefore, the choice of an option is FFS.

6.5.2 Constraints

None.

6.6 Common Notifications

6.7 System State Model

Annex A (informative): Change history

Change history								
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Cat**	**Old**	**New**
Dec 2008					Presentation to SA for information		---	1.0.0
Mar 2009	SP-43	SP-090074	--	--	Presentation to SA for approval		2.0.0	8.0.0
Jun 2009	SP-44	SP-090408	001	-	Cleanup, updated figures and improved definitions	F	8.0.0	8.1.0
Jun 2009	SP-44	SP-090289	002	-	Clarify x2Whitelist definition	F	8.0.0	8.0.0
Jun 2009	SP-44	SP-090408	004	-	Add the missing cellSize attribute in EUtranGenericCell IOC - align with 36.423	F	8.0.0	8.1.0
Jun 2009	SP-44	SP-090408	006	-	IOC Relations and UML updates	F	8.0.0	8.1.0
Jun 2009	SP-44	SP-090408	007	-	Add missing IOCs in the Class Diagram	F	8.0.0	8.1.0
Jun 2009	SP-44	SP-090408	008	-	Add the missing downlink power related attributes for EUTRAN Cell - align with 36.213 and 36.331	F	8.0.0	8.1.0
Jun 2009	SP-44	SP-090289	003	-	Add downlink power related attributes for EUTRAN Cell	F	8.0.0	8.1.0
Sep 2009	SP-45	SP-090542	10	-	Add missing attribute "id"	F	8.1.0	8.2.0
Sep 2009	SP-45	SP-090542	13	-	Correct Information relationship definitions	F	8.1.0	8.2.0
Sep 2009	SP-45	SP-090627	15	-	Removing changes introduced by S5-092094	F	8.1.0	8.2.0
Sep 2009	SP-45	SP-090542	16	-	Added missing imported entities and attribute	F	8.1.0	8.2.0

History

Document history		
V8.0.0	April 2009	Publication
V8.1.0	July 2009	Publication
V8.2.0	October 2009	Publication