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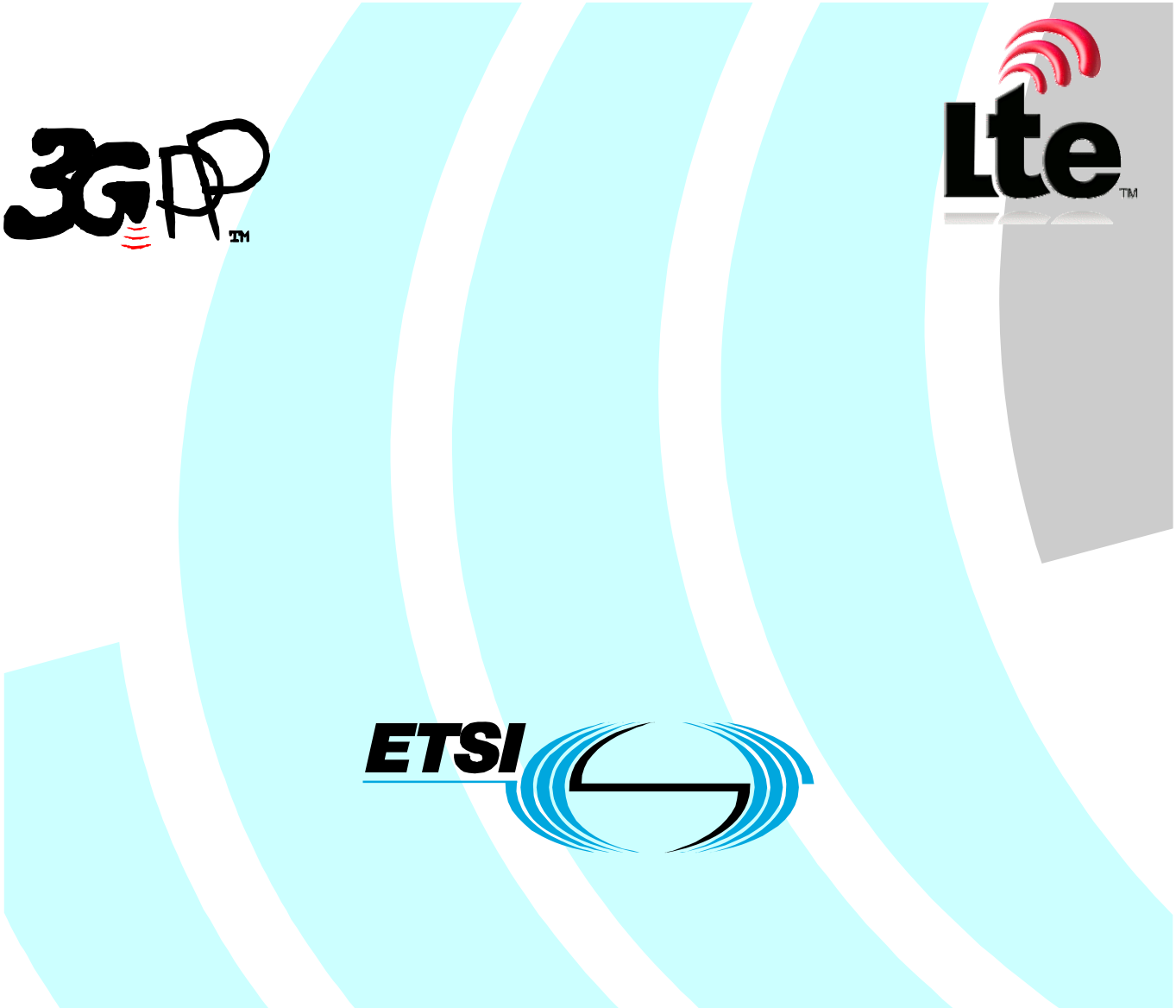
Technical Specification

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):
Common Object Request Broker Architecture (CORBA)
Solution Set (SS)
(3GPP TS 32.763 version 8.2.0 Release 8)



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Foreword

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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

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- 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

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): Bulk CM 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 E-UTRAN Network Resources IRP: CORBA Solution Set, which defines the mapping of the IRP information model (see TS 32.762 [2]) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment.

This Solution Set is related to 3GPP TS 32.762 v8.2.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 21.905: 'Vocabulary for 3GPP Specifications'

[2] 3GPP TS 32.762: " Telecommunications management; Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)".

[3] 3GPP TS 32.643: 'Telecommunication management; Configuration Management (CM); UTRAN network resources Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)'

3 Definitions, symbols and abbreviations

3.1 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

CORBA	Common Object Request Broker Architecture
DN	Distinguished Name
IS	Information Service
IDL	Interface Definition Language (OMG)
IOC	Information Object Class
IRP	Integration Reference Point
MO	Managed Object

MOC	Managed Object Class
NRM	Network Resource Model
OMG	Object Management Group
SS	Solution Set

4 Architectural Features

The overall architectural feature of 32.763 is specified in 3GPP TS 32.762 [2]. This clause specifies features that are specific to the CORBA SS.

5 Mapping

5.1 General

Attributes modelling associations as defined in the NRM (here also called "reference attributes") are in this SS mapped to attributes. The names of the reference attributes in the NRM are mapped to the corresponding attribute names in the MOC. When the cardinality for an association is 0..1 or 1..1 the datatype for the reference attribute is defined as an MOReference. The value of an MO reference contains the distinguished name of the associated MO. When the cardinality for an association allows more than one referred MO, the reference attribute will be of type MOReferenceSet, which contains a sequence of MO references.

5.2 Information Object Class (IOC) mapping

5.2.1 IOC ENBFunction

Attribute of IOC ENBFunction in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
id	id	string	M	M	-
x2BlackList	x2BlackList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet	CM	M	M
x2WhiteList	x2WhiteList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet	CM	M	M
x2HOBlackList	x2HOBlackList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet	CM	M	M
x2IpAddressList	x2IpAddressList		O	M	-
Note: For all conditional qualifiers, see attribute constraints in 32.762 [2]					

5.2.2 IOC EUtranGenericCell

Attribute of IOC EUtranGenericCell in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier
id	id	string	M	M
cellIdentity	cellIdentity	long	M	M
cellSize	cellSize	genericEUTRANNRMAttributeTypes::cellSizeEnumType	M	M
cellType	cellType	genericEUTRANNRMAttributeTypes::cellTypeEnumType	M	M
plmnIdList	plmnIdList	genericEUTRANNRMAttributeTypes::plmnIdListType	M	M
tac	tac	long	M	M
pci	pci	short	M	M
pciList	pciList	genericEUTRANNRMAttributeTypes::pciListType	CM	M
maximumTransmissionPower	maximumTransmissionPower	short	M	M
referenceSignalPower	referenceSignalPower	short	O	M
pb	pb	short	O	M
partOfSectorPower	partOfSectorPower	short	CM	M
operationalState	operationalState	StateManagementIRPOptConstDefs::OperationalStateTypeOpt	O	M
administrativeState	administrativeState	StateManagementIRPOptConstDefs::AdministrativeStateTypeOpt	O	M
availabilityStatus	availabilityStatus	StateManagementIRPOptConstDefs::AvailabilityStatusTypeOpt	O	M
Note: For all conditional qualifiers, see attribute constraints in 32.762 [2]				

5.2.3 IOC ExternalEUtranGenericCell

Attribute of IOC ExternalEUtranGenericCell in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
id	id	string	M	M	-
pci	pci	short	M	M	M
plmnIdList	plmnIdList	genericEUTRANNRMAttributeTypes::plmnIdListType	O	M	M
cellIdentity	cellIdentity	long	M	M	M

5.2.4. IOC EUtranCellFDD

Attribute of IOC EUtranCellFDD in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
earfcnDl	earfcnDl	short	M	M	M
earfcnUl	earfcnUl	short	M	M	M

5.2.5 IOC ExternalEUtranCellFDD

Attribute of IOC ExternalEUtranCellFDD in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
earfcnDl	earfcnDl	short	M	M	M
earfcnUl	earfcnUl	short	M	M	M

5.2.6 IOC EUtranRelation

Attribute of IOC EUtranRelation in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
id	id	string	M	M	-
tCI	tCI	long	M	M	M
isRemoveAllowed	isRemoveAllowed	boolean	CM	M	M
isHOAllowed	isHOAllowed	boolean	CM	M	M
adjacentCell	adjacentCell	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReference	M	M	-
Note: For all conditional qualifiers, see attribute constraints in 32.762 [2]					

5.2.7 IOC Link_ENB_ENB

Attribute of IOC Link_ENB_ENB in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier

5.2.8 IOC Cdma2000Relation

Attribute of IOC Cdma2000Relation in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
id	id	string	M	M	-
adjacentSector	adjacentSector	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReference	M	M	-

5.2.9 IOC EP_RP_EPS

Attribute of IOC EP_RP_EPS in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
farEndNeIpAddr	farEndNeIpAddr	string	O	M	O

5.2.10 IOC SectorEquipmentFunction

Attribute of IOC SectorEquipmentFunction in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
id	id	string	M	M	-
fqBand	fqBand	short	M	M	-
confOutputPower	confOutputPower	short	M	M	M

5.2.11 IOC ExternalENBFunction

Attribute of IOC ExternalENBFunction in 3GPP TS 32.762 [2]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
id	id	string	M	M	-

6 Rules for management information model extensions

For rules on how the models and IDL definitions provided in the present document can be extended for a particular implementation while still remaining compliant with 3GPP SA5's specifications, see section 6 of TS 32.643 [3].

Editor''s note: The contents of section 6 may change depending on the development of the SS template in TS 32.153.

Annex A (normative): CORBA IDL, NRM definitions

```
//File:EUtranNetworkResourcesNRMDefs.idl
#ifndef _EUTRANNETWORKRESOURCESNRMDEFS_IDL_
#define _EUTRANNETWORKRESOURCESNRMDEFS_IDL_
#include "GenericNetworkResourcesNRMDefs.idl"
#pragma prefix "3gppsa5.org"
/**
 * This module defines constants for each MO class name and
 * the attribute names for each defined MO class.
 */
module EUtranNetworkResourcesNRMDefs
{



    /*
     * Definitions for MO class ENBFunction
     */
    interface ENBFunction: GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "ENBFunction";
        // Attribute Names
        //
        const string id= "id";
        const string x2BlackList= "x2BlackList";
        const string x2WhiteList= "x2WhiteList";
        const string x2HOBlackList= "x2HOBlackList";
    };

    /*
     * Definitions for MO class EUtranGenericCell
     */
    interface EUtranGenericCell: GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "EUtranGenericCell";
        // Attribute Names
        //
        const string id = "id";
        const string cellIdentity = "cellIdentity";
        const string cellSize = "cellSize";
        const string cellType = "cellType";
        const string numberOfTransmitAntennas = "numberOfTransmitAntennas";
        const string numberOfReceiveAntennas = "numberOfReceiveAntennas";
        const string plmnIdList = "plmnIdList";
        const string tac = "tac";
        const string pci = "pci";
        const string pciList = "pciList";
        const string operationalState = "operationalState";
        const string administrativeState = "administrativeState";
        const string availabilityStatus = "availabilityStatus";
        const string maximumTransmissionPower = "maximumTransmissionPower";
        const string referenceSignalPower = "referenceSignalPower";
        const string pb = "pb";
        const string partOfSectorPower = "partOfSectorPower";

    };


    /*
     * Definitions for MO class ExternalEUtranGenericCell
     */
    interface ExternalEUtranGenericCell: GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "ExternalEUtranGenericCell";
        // Attribute Names
        //
        const string id= "id";
        const string pci= "pci";
        const string plmnIdList = "plmnIdList";
```

```
        const string cellIdentity = "cellIdentity";
    };


    /*
     * Definitions for MO class EUtranCellFDD
     */
    interface EUtranCellFDD: EUtranGenericCell
    {
        const string CLASS = "EUtranCellFDD";
        // Attribute Names
        //
        const string earfcnDl = "earfcnDl";
        const string earfcnUl = "earfcnUl";
    };


    /*
     * Definitions for MO class ExternalEUtranCellFDD
     */
    interface ExternalEUtranCellFDD: EUtranGenericCell
    {
        const string CLASS = "ExternalEUtranCellFDD";
        // Attribute Names
        //
        const string earfcnDl = "earfcnDl";
        const string earfcnUl = "earfcnUl";
    };

/*
     * Definitions for MO class EUtranCellTDD
     */
    interface EUtranCellTDD: EUtranGenericCell
    {
        const string CLASS = "EUtranCellTDD";
        // Attribute Names
        //

    };
/*
     * Definitions for MO class ExternalEUtranCellTDD
     */
    interface ExternalEUtranCellTDD: EUtranGenericCell
    {
        const string CLASS = "ExternalEUtranCellTDD";
        // Attribute Names
        //

    };



    /*
     * Definitions for MO class EUtranRelation
     */
    interface EUtranRelation: GenericNetworkResourcesNRMDefs::Top
    {
        const string CLASS = "EUtranRelation";
        // Attribute Names
        //
        const string id= "id";
        const string tCI = "tCI";
        const string isRemoveAllowed = "isRemoveAllowed";
        const string isHOAllowed = "isHOAllowed";
        const string adjacentCell = "adjacentCell";
    };


/*
     * Definitions for MO class Link_ENB_ENB
     */
    interface Link_ENB_ENB: GenericNetworkResourcesNRMDefs::Link
    {
        const string CLASS = "Link_ENB_ENB";
        // Attribute Names
        //

    };
```

```
/*
     * Definitions for MO class Cdma2000Relation
     */
    interface Cdma2000Relation:GenericNetworkResourcesNRMDefs::Top
    {
        const string CLASS = "Cdma2000Relation";
        // Attribute Names
        //
        const string id= "id";
        const string adjacentSector = "adjacentSector";

    };


/*
     * Definitions for MO class EP_RP_EPS
     */
    interface EP_RP_EPS: GenericNetworkResourcesNRMDefs::EP_RP
    {
        const string CLASS = "EP_RP_EPS";
        // Attribute Names
        //
        const string farEndNeIpAddr = "farEndNeIpAddr";
    };


/*
     * Definitions for MO class ExternalENBFunction
     */
    interface ExternalENBFunction: GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "ExternalENBFunction";
        // Attribute Names
        //
        const string id = "id";

    };



*
     * Definitions for MO class SectorEquipmentFunction
     */
    interface SectorEquipmentFunction: GenericNetworkResourcesNRMDefs::ManagedElement
    {
        const string CLASS = "SectorEquipmentFunction";
        // Attribute Names
        //
        const string id= "id";
        const string fqBand= "fqBand";
        const string confOutputPower= "confOutputPower";
    };

};



module genericEUTRANNRMAttributeTypes
{
    /**
     * Cells can be any of femto, pico or macro.
     */
    enum cellTypeEnumType
    {
        FEMTO,
        PICO,
        MACRO
    };

    enum cellSizeEnumType
    {
        verysmall,
        small,
        medium,
```

```
        large
    };


    struct PlmnIdType
    {
        short mcc;
        short mnc;
    };
    const short PLMNID_LIST_LENGTH = 6
    typedef sequence<PlmnIdType > plmnIdListType;

    const short NO_OF_PCIS = 504;
    typedef sequence<short,NO_OF_PCIS> pciListType;

};


};
#endif // _EUTRANNETWORKRESOURCESNRMDEFS_IDL_
```

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2009	SP-43	SP-090075	--	--	Presentation to SA for information and approval	1.0.0	8.0.0
Jun 2009	SP-44	SP-090408	001	--	Add the missing cellSize attribute in EUTRANGenericCell - align with 36.423	8.0.0	8.1.0
Jun 2009	SP-44	SP-090408	003	--	Add the missing downlink power related attributes for EUTRAN Cell - align with 36.213 and 36.331	8.0.0	8.1.0
Sep 2009	SP-45	SP-090542	005	-	Align with the IS in 32.762 - Add and remove attributes for IOC Relations	8.1.0	8.2.0
Sep 2009	SP-45	SP-090542	007	-	Add missing attribute "id" and remove old "<Classname>Id" attributes.	8.1.0	8.2.0
Sep 2009	SP-45	SP-090542	008	-	Align with the IS in 32.762 - Add ExternalENBFunction	8.1.0	8.2.0
Sep 2009	SP-45	SP-090542	012	-	Add plmnIdList to ExternalEutranGenericCell	8.1.0	8.2.0

History

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