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TECHNICAL SPECIFICATION

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Evolved Universal Terrestrial
Radio Access Network (E-UTRAN)
Network Resource Model (NRM)
Integration Reference Point (IRP);
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Contents

Intellectual Property Rights 2
Foreword 2
Modal verbs terminology 2
Foreword 6
Introduction 6
1 Scope 7
2 References 7
3 Definitions and abbreviations 9
3.1 Definitions 9
3.2 Abbreviations 9
4 Model 9
4.1 Imported information entities and local labels 9
4.2 Class diagram 10
4.2.1 Relationships 10
4.2.2 Inheritance 14
4.3 Class definitions 15
4.3.1 `ENBFunction` 15
4.3.1.1 Definition 15
4.3.1.2 Attributes 15
4.3.1.3 Attribute constraints 15
4.3.1.4 Notifications 15
4.3.2 `ExternalENBFunction` 15
4.3.2.1 Definition 15
4.3.2.2 Attributes 16
4.3.2.3 Attribute constraints 16
4.3.2.4 Notifications 16
4.3.3 `EUtranGenericCell` 16
4.3.3.1 Definition 16
4.3.3.2 Attributes 16
4.3.3.3 Attribute constraints 17
4.3.3.4 Notifications 17
4.3.4 `ExternalEUtranGenericCell` 17
4.3.4.1 Definition 17
4.3.4.2 Attributes 17
4.3.4.3 Attribute constraints 17
4.3.4.4 Notifications 17
4.3.5 `EUtranCellFDD` 18
4.3.5.1 Definition 18
4.3.5.2 Attributes 18
4.3.5.3 Attribute constraints 18
4.3.5.4 Notifications 18
4.3.6 `ExternalEUtranCellFDD` 18
4.3.6.1 Definition 18
4.3.6.2 Attributes 18
4.3.6.3 Attribute constraints 18
4.3.6.4 Notifications 18
4.3.7 `EUtranCellTDD` 18
4.3.7.1 Definition 18
4.3.7.2 Attributes 19
4.3.7.3 Attribute constraints 19
4.3.7.4 Notifications 19
4.3.8 `ExternalEUtranCellTDD` 19

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4.3.8.1 Definition 19
4.3.8.3 Attribute constraints 19
4.3.8.4 Notifications 19
4.3.9 EUtranRelation 19
4.3.9.1 Definition 19
4.3.9.2 Attributes 20
4.3.9.3 Attribute constraints 20
4.3.9.4 Notifications 20
4.3.10 Link_ENB_ENB 20
4.3.10.1 Definition 20
4.3.10.2 Attributes 20
4.3.10.3 Attribute constraints 20
4.3.10.4 Notifications 20
4.3.11 Cdma2000Relation 21
4.3.11.1 Definition 21
4.3.11.2 Attributes 21
4.3.11.3 Attribute constraints 21
4.3.11.4 Notifications 21
4.3.12 MCEFunction 21
4.3.12.1 Definition 21
4.3.12.2 Attributes 21
4.3.12.3 Attribute constraints 21
4.3.12.4 Notifications 21
4.3.13 MBSFNArea 21
4.3.13.1 Definition 21
4.3.13.2 Attributes 22
4.3.13.3 Attribute constraints 22
4.3.13.4 Notifications 22
4.3.14 Link_MCE_ENB 22
4.3.14.1 Definition 22
4.3.14.2 Attributes 22
4.3.14.3 Attribute constraints 22
4.3.14.4 Notifications 22
4.3.15 Link_MCE_MME 22
4.3.15.1 Definition 22
4.3.15.2 Attributes 22
4.3.15.3 Attribute constraints 22
4.3.15.4 Notifications 22
4.3.16 RNFunction 23
4.3.16.1 Definition 23
4.3.16.2 Attributes 23
4.3.16.3 Attribute constraints 23
4.3.16.4 Notifications 23
4.3.17 ExternalRNFunction 23
4.3.17.1 Definition 23
4.3.17.2 Attributes 23
4.3.17.3 Attribute constraints 23
4.3.17.4 Notifications 23
4.3.18 DeNBCapability 23
4.3.18.1 Definition 23
4.3.18.2 Attributes 24
4.3.18.3 Attribute constraints 24
4.3.18.4 Notifications 24
4.3.19 CellOutageCompensationInformation 24
4.3.19.1 Definition 24
4.3.19.2 Attributes 24
4.3.19.3 Attribute constraints 24
4.3.19.4 Notifications 24
4.3.20 QciDscpMapping 24
4.3.20.1 Definition 24
4.3.20.2 Attributes 24

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https://standards.iteh.ai/catalog/standards/sist/1173bb04-3000-1434-8485-0ecd929fc382/etsi-ts-128-658-v14.1.0-2017-10

4.3.20.3 Attribute constraints 24
4.3.20.4 Notifications 25
4.3.21 `EUtranCellNMCentralizedSON` 25
4.3.21.1 Definition 25
4.3.21.2 Attributes 26
4.3.21.3 Attribute constraints 28
4.3.21.4 Notifications 28
4.4 Attribute definitions 29
4.4.1 Attribute properties 29
4.4.2 Constraints 47
4.5 Common notifications 47
4.5.1 Alarm notifications 47
4.5.2 Configuration notifications 48

Annex A (informative): Notifications during a Cell Outage Compensation 49

Annex B (informative): Change history 53

History 54

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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:

TS 28.657 Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP); Requirements

TS 28.658 Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)

TS 28.659 Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions

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1 Scope

The present document specifies the E-UTRAN network resource information that can be communicated between an IRPAgent and an IRPManager for telecommunication network management purposes, including management of converged networks.

This document specifies the semantics and behaviour of information object class attributes and relations visible across the reference point in a protocol and technology neutral way. It does not define their syntax and encoding.

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 28.622 [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*.

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[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 28.628: "Self-Organizing Networks (SON) Policy Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS) ".

[6] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

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

[8] 3GPP TS 36.321: "Universal Terrestrial Access Network (UTRAN); Medium Access Control (MAC) protocol specification".

[9] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

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

[11] 3GPP TS 36.300: "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: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation"

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

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

[15] 3GPP TS 32.500: "Telecommunication Management; Self-Organizing Networks (SON); Concepts and requirements"

[16] 3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions"

[17] 3GPP TS 21.905: "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 28.652: "Telecommunication management; Universal Terrestrial Radio Access Network (UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)"

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

[23] 3GPP TS 28.708: "Telecommunication management; Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)"

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

[25] 3GPP TS 36.213: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures".

[26] 3GPP TS 28.625: "Telecommunication management; State Management Data Definition Integration Reference Point (IRP); Information Service (IS)".

[27] 3GPP TS 36.413: "Evolved Universal Terrestrial Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[28] 3GPP TS 36.443: "Evolved Universal Terrestrial Access Network (E-UTRAN); M2 Application Protocol (M2AP)".

[29] 3GPP TS 22.011: "Service accessibility".

[30] 3GPP TS 32.422: "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management".

[31] 3GPP TS 28.662: "Telecommunication management; Generic Radio Access Network (RAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[32] 3GPP TS 32.662: "Telecommunication management; Configuration Management (CM); Kernel CM; Information service (IS)".

[33] 3GPP TS 23.203: "Policy and charging control architecture".

[34] 3GPP TS 23.207: "End-to-end Quality of Service (QoS) concept and architecture".

[35] RFC 2474: "Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers".

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[36] 3GPP TS 45.008: "Technical Specification Group GSM/EDGE Radio Access Network; Radio subsystem link control".

[37] 3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

[38] 3GPP TS 36.133: "Universal Terrestrial Access Network (UTRAN); Requirements for support of radio resource management".

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.

Association: See definition in TS 28.622 [6].

Network Resource Model (NRM): See definition in TS 28.622 [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.

DeNB	Donor eNodeB
DN	Distinguished Name (see 3GPP TS 32.300 [4])
E-UTRA	Evolved Universal Terrestrial Radio Access
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
MBSFN	Multimedia Broadcast multicast service Single Frequency Network
NR	Neighbour cell Relation
PM	Performance Management
RDN	Relative Distinguished Name (see 3GPP TS 32.300 [4])
RN	Relay Node

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4 Model

4.1 Imported information entities and local labels

Label reference	Local label
3GPP TS 28.625 [26], attribute, `administrativeState`	`administrativeState`
3GPP TS 28.625 [26], attribute, `availabilityStatus`	`availabilityStatus`
3GPP TS 28.625 [26], attribute, `operationalState`	`operationalState`
3GPP TS 28.622 [6], IOC, `Top`	`Top`
3GPP TS 28.622 [6], IOC, `ManagedElement`	`ManagedElement`
3GPP TS 28.622 [6], IOC, `SubNetwork`	`SubNetwork`

3GPP TS 28.622 [6], IOC, ManagedFunction	ManagedFunction
3GPP TS 28.622 [6], IOC, Link	Link
3GPP TS 28.708 [23], IOC, MMEFunction	MMEFunction
3GPP TS 28.708 [23], IOC, ExternalMMEFunction	ExternalMMEFunction
3GPP TS 28.652 [21], IOC, UtranRelation	UtranRelation
3GPP TS 28.662 [31], IOC, AntennaFunction	AntennaFunction
3GPP TS 28.662 [31], IOC, TmaFunction	TmaFunction
3GPP TS 32.652 [20], IOC, GsmRelation	GsmRelation
3GPP2 TS S.S0028 [22], IOC, ExternalSector	ExternalSector
3GPP TS 28.708 [23], IOC, EP_RP_EPS	EP_RP_EPS
3GPP TS 28.708 [23], IOC, QCISet	QCISet
3GPP TS 28.662 [31], IOC, SectorEquipmentFunction	SectorEquipmentFunction
3GPP TS 28.628 [5], IOC, EnergySavingProperties	EnergySavingProperties

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4.2 Class diagram

4.2.1 Relationships

This clause depicts the set of classes (e.g. IOCs) that encapsulates the information relevant for this IRP. This clause provides the overview of the relationships of relevant classes in UML. Subsequent clauses provide more detailed specification of various aspects of these classes.

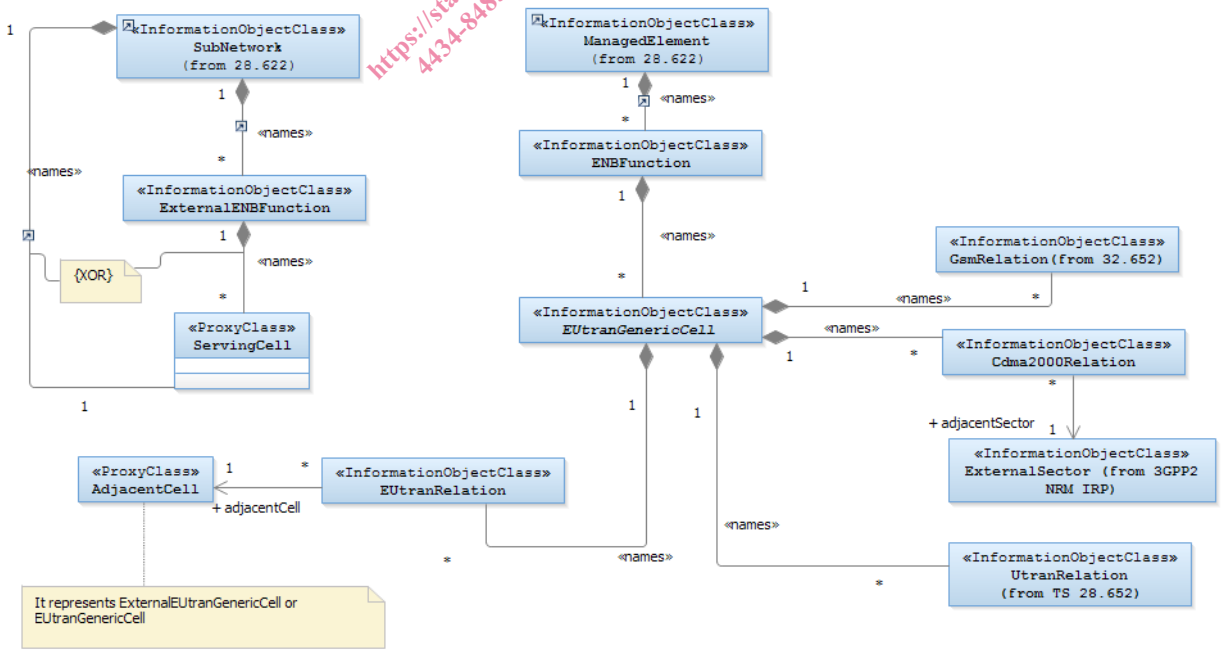
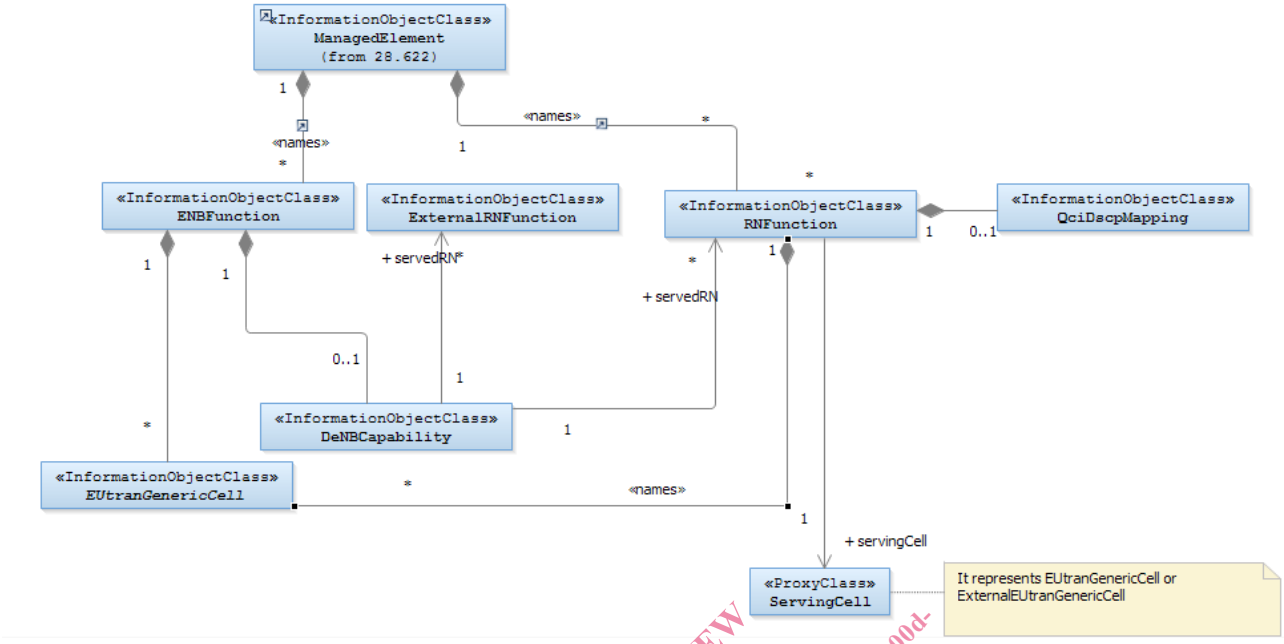


Figure 4.2.1-1: Cell view of E-UTRAN NRM



NOTE 1: If an instance of the *ServesRN* association is present, then a corresponding instance of *ServedByEGC* must be present. In this case, the `ENBFunction` and `RNFunction` instances are under the management scope of the same IRPAgent.
If an instance of the *ServesExtRN* association is present, then a corresponding instance of *ServedByExtEGC* must be present. In this case, the `ENBFunction` and `RNFunction` instances are under the management scope of two different IRPAgents.

NOTE 2: The modelling of the DeNB capability as a separate IOC or as attributes of `ENBFunction` is FFS

Figure 4.2.1-2: E-UTRAN relaying view of E-UTRAN NRM

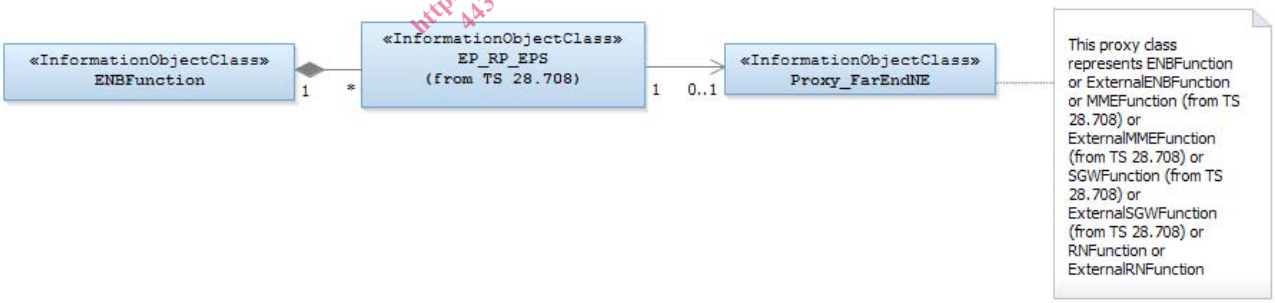


Figure 4.2.1-3: Transport view of E-UTRAN NRM

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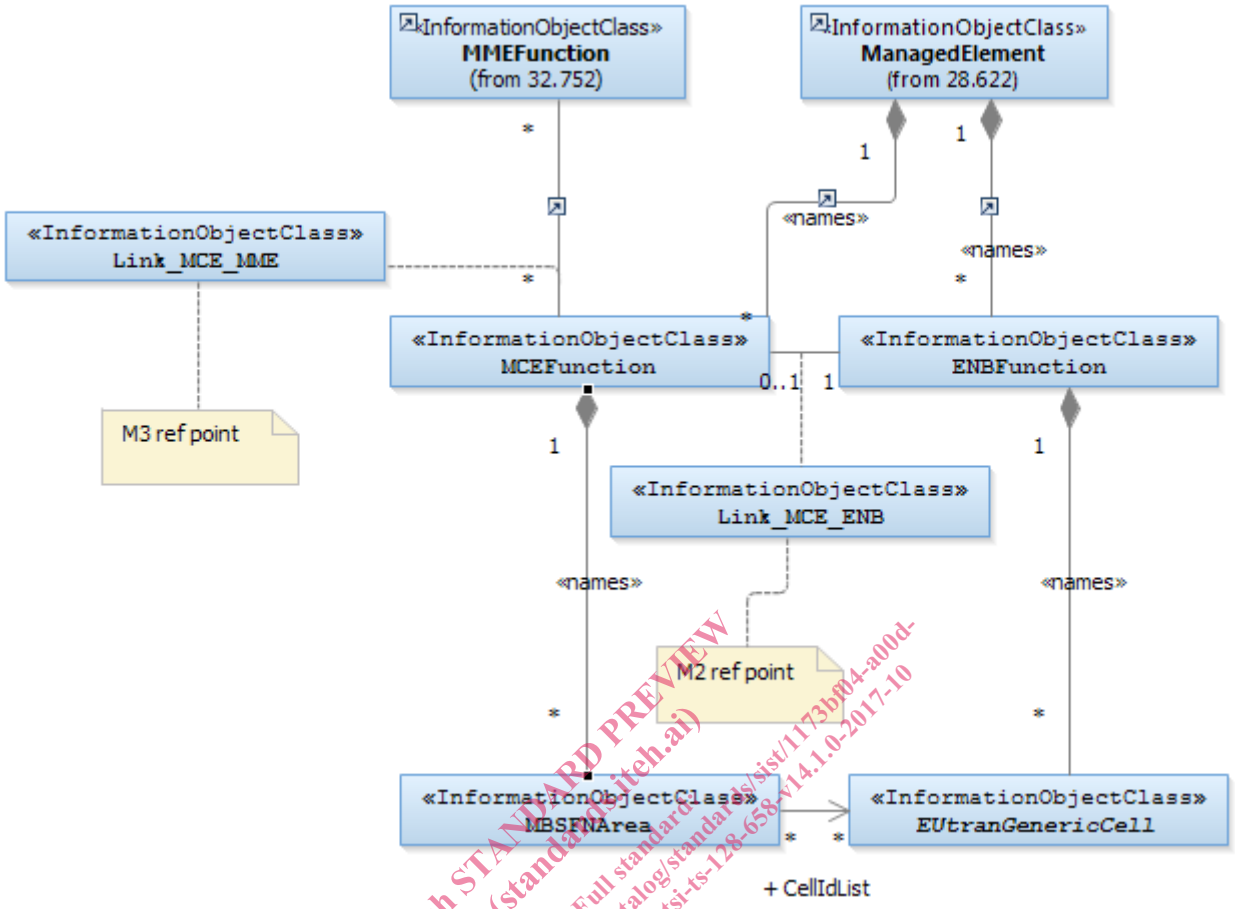

Figure 4.2.1-4: MBMS view of E-UTRAN NRM 1

NOTE 1: This is E-UTRAN NRM containment/relationship Figure form view of MBMS when MCE and ENB belong to one Network Element.

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