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Technical Specification

3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS) (Release 6)

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Contents

Foreword

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

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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
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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; Configuration Management (CM), as identified below:

32.651: "GERAN network resources Integration Reference Point (IRP): Requirements".

32.652: "GERAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

32.653: "GERAN network resources Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)".

32.654: "GERAN network resources Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)".

32.655: "GERAN network resources Integration Reference Point (IRP): Bulk CM eXtensible Markup Language (XML) file format definition".

The interface Itf-N, defined in 3GPP TS 32.102 [2], is built up by a number of Integration Reference Points (IRPs) and a related Name Convention, which realise the functional capabilities over this interface. The basic structure of the IRPs is defined in 3GPP TS 32.101 [1] and 3GPP TS 32.102 [2].

1 Scope

The present document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the GERAN Network Resource Integration Reference Point (IRP): Network Resource Model defined in 3GPP TS 32.652 [4]. In detail:

- Clause 4 contains an introduction to some concepts that are the base for some specific aspects of the CMIP interfaces.
- Clause 5 contains the GDMO definitions for the Alarm Management over the CMIP interfaces
- Clause 6 contains the ASN.1 definitions supporting the GDMO definitions provided in clause 5.

This Solution Set specification is related to 3GPP TS 32.652 V6.0.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: "Telecommunication management; Principles and high level requirements".

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

[3] 3GPP TS 32.304: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)".

[4] 3GPP TS 32.652: "Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

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

[6] ITU-T Recommendation X.721 (02/92): "Information Technology - Open Systems Interconnection – Structure of Management Information: Definition of Management Information".

[7] ITU-T Recommendation X.730 (01/92): "Information Technology - Open Systems Interconnection – Systems Management: Object Management Function".

[8] ITU-T Recommendation X.733 (02/92): "Information Technology - Open Systems Interconnection - Alarm Reporting Function".

[9] ITU-T Recommendation M.3100 (07/95): "Maintenance Telecommunications Management Network – Generic Network Information Model".

[10] GSM 12.20 (06/1996): "Digital cellular communication system (Phase 2); Base Station System (BSS) Management Information".

[11] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".

[12] 3GPP TS 32.644: "Telecommunication management; Configuration Management (CM); UTRAN network resources Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.600 [11] and 3GPP TS 32.652 [4] apply.

3.2 Abbreviations

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

CMIP	Common Management Information Protocol
DN	Distinguished Name
GDMO	Guidelines for the Definition of Managed Objects
GERAN	GSM-EDGE Radio Access Network
IDL	Interface Definition Language
IEC	International Electro-technical Commission
ISO	International Standards Organization
MIB	Management Information Base
MIM	Management Information Model
MIT	Management Information Tree (or Naming Tree)
MOC	Managed Object Class
MOI	Managed Object Instance
NE	Network Element
NR	Network Resource
NRM	Network Resource Model
TMN	Telecommunications Management Network
UTRAN	Universal Terrestrial Radio Access Network

4 Basic aspects

4.1 Architectural Aspects

A technology independent GERAN network resource model is defined in 3GPP TS 32.652 [4] for 3G networks. This document provides an implementation of this GERAN network resource model by using CMIP technology.

4.2 Mapping

The semantic of the GERAN Network Resource Model is defined in 3GPP TS 32.652 [4]. The specification of the information object classes defined there is independent of any implementation technology and protocol.
This clause maps these technology and protocol independent definitions onto the equivalencies of the CMIP Solution Set of the GERAN Network Resource IRP.

4.2.1 Mapping of Information Object Classes

The following table maps the information object classes defined in the GERAN Network Resource Model onto the equivalent MOCs of the CMIP Solution Set.

Table 4.1: Mapping of MOCs

IS IOC	CMIP SS MOC
BssFunction	bssFunction
BtsSiteMgr	btsSiteMgrR0600
GsmCell	gsmCellR54
GsmRelation	gsmRelation
ExternalGsmCell	externalGsmCell
ExternalBssFunction	externalBssFunction

4.2.2 Mapping of Information Object Class Attributes

This clause depicts the mapping of the attributes defined in 3GPP TS 32.652 [4] on the corresponding attributes of the CMIP Solution Set.

4.2.2.1 Attribute Mapping of the IOC *BssFunction*

Table 4.2: Attribute mapping of the IOC *BssFunction*

IS Attribute	CMIP SS Attribute	Qualifier
bssFunctionId	bssFunctionId	M
userLabel	userLabel (ITU-T Rec. M.3100 [9])	M

4.2.2.2 Attribute Mapping of the IOC *BtsSiteMgr*

Table 4.3: Attribute mapping of the IOC *BtsSiteMgr*

IS Attribute	CMIP SS Attribute	Qualifier
btsSiteMgrId	btsSiteMgrId	M
userLabel	userLabel (ITU-T Rec. M.3100 [9])	M
latitude	latitude	O
longitude	longitude	O

4.2.2.3 Attribute Mapping of the IOC *GsmCell*

Table 4.4: Attribute mapping of the IOC *GsmCell*

IS Attribute	CMIP SS Attribute	Qualifier
gsmCellId	gsmCellId	M
userLabel	userLabel (ITU-T Rec. M.3100 [9])	M
cellIdentity	cellGlobalIdentity (GSM 12.20 [10])	M
lac		
mcc		
mnc		
cellAllocation	cellAllocation (GSM 12.20 [10])	M
ncc	bsIdentityCode.ncc (GSM 12.20 [10])	M
bcc	bsIdentityCode.bcc (GSM 12.20 [10])	M
rac	rac (3GPP TS 32.644 [12])	O
racc	racc	O
tsc	tsc (GSM 12.20 [10])	M
rxLevAccessMin	rxLevAccessMin (GSM 12.20 [10])	M
msTxPwrMaxCCH	msTxPwrMaxCCH (GSM 12.20 [10])	M
hoppingSequenceNumber	hoppingSequenceNumber (GSM 12.20 [10])	M
plmnPermitted	plmnPermitted	M

4.2.2.4 Attribute Mapping of the IOC *GsmRelation*

Table 4.5: Attribute mapping of the IOC *GsmRelation*

IS Attribute	CMIP SS Attribute	Qualifier
gsmRelationId	gsmRelationId	M
adjacentCell	adjacentCell (3GPP TS 32.644 [12])	M
bcchFrequency	bcchFrequency (GSM 12.20 [10])	O
ncc	bsIdentityCode.ncc (GSM 12.20 [10])	O
bcc	bsIdentityCode.bcc (GSM 12.20 [10])	O
lac	lac (3GPP TS 32.644 [12])	O

4.2.2.5 Attribute Mapping of the IOC *ExternalGsmCell*

Table 4.6: Attribute mapping of the IOC *ExternalGsmCell*

IS Attribute	CMIP SS Attribute	Qualifier
externalGsmCellId	externalGsmCellId	M
userLabel	userLabel (ITU-T Rec. M.3100 [9])	M
cellIdentity	cellGlobalIdentity (GSM 12.20 [10])	M
lac		
mcc		
mnc		
bcchFrequency	bcchFrequency (GSM 12.20 [10])	M
ncc	bsIdentityCode.ncc (GSM 12.20 [10])	M
bcc	bsIdentityCode.bcc (GSM 12.20 [10])	M
rac	rac (3GPP TS 32.644 [12])	O
racc	racc	O

4.2.2.6 Attribute Mapping of the IOC *ExternalBssFunction*

Table 4.7: Attribute mapping of the IOC *ExternalBssFunction*

IS Attribute	CMIP SS Attribute	Qualifier
externalBssFunctionId	externalBssFunctionId	M
userLabel	userLabel (ITU-T Rec. M.3100 [9])	M

4.2.3 Mapping of Name Containments

Table 4.8: Mapping of name containments

IS Name Containment	CMIP SS Name Binding
bssFunction - managedElement	bssFunction-managedElement
btsSiteMgr - bssFunction	btsSiteMgrR0600-bssFunction
gsmCell - btsSiteMgr	gsmCellR54-btsSiteMgrR0600
gsmRelation - gsmCell	gsmRelation-gsmCellR54
externalGsmCell - subNetwork	externalGsmCell-subNetwork
externalBssFunction - subNetwork	externalBssFunction-subNetwork-R0600
externalGsmCell-externalBssFunction	externalGsmCell-externalBssFunction-R0610
utranRelation-gsmCell	utranRelation-gsmCell-R0610

5 GDMO Definitions

-- 5.1 Managed Object Classes

-- 5.1.1 bssFunction

```
bssFunction MANAGED OBJECT CLASS
   DERIVED FROM
      "3GPP TS 32.624 Release 6":managedFunction;
   CHARACTERIZED BY
      bssFunctionBasicPackage,
      "3GPP TS 32.111-4 Release 6":x721AlarmNotificationsPackage;
   CONDITIONAL PACKAGES
      "Rec. M.3100: 1995":createDeleteNotificationsPackage
          PRESENT IF
             "the objectCreation and the objectDeletion notifications defined in
              ITU-T Rec. X.721 are supported by an instance of this class.",
      "Rec. M.3100: 1995":attributeValueChangeNotificationPackage
          PRESENT IF
             "the attributeValueChange notification defined in ITU-T Rec. X.721
              is supported by an instance of this class.";
REGISTERED AS {ts32-654ObjectClass 1};
```

-- 5.1.2 btsSiteMgr

```
btsSiteMgrR0600 MANAGED OBJECT CLASS
   DERIVED FROM
      "3GPP TS 32.624 Release 6":managedFunction;
   CHARACTERIZED BY
      btsSiteMgrBasicPackage,
      "3GPP TS 32.111-4 Release 6":x721AlarmNotificationsPackage;
   CONDITIONAL PACKAGES
      "Rec. M.3100: 1995":createDeleteNotificationsPackage
          PRESENT IF
             "the objectCreation and the objectDeletion notifications defined in
              ITU-T Rec. X.721 are supported by an instance of this class.",
      "Rec. M.3100: 1995":attributeValueChangeNotificationPackage
          PRESENT IF
             "the attributeValueChange notification defined in ITU-T Rec. X.721
              is supported by an instance of this class.",
      "Rec. M.3100: 1995":stateChangeNotificationPackage
          PRESENT IF
             "the stateChange notification defined in ITU-T Rec. X.721
              is supported by an instance of this class",
      "3GPP TS 32.674 Release 6":operationalStateAttributePackage
          PRESENT IF
             " the operationalState attribute is supported by an instance of this class.",
      btsSiteMgrGeoPositionPackage
          PRESENT IF
             "the attributes defined in this package are supported by an instance of this class.";
REGISTERED AS {ts32-654ObjectClass 20600};
```

-- 5.1.3 gsmCell

```
gsmCellR54 MANAGED OBJECT CLASS
   DERIVED FROM
      "3GPP TS 32.624 Release 6":managedFunction;
CHARACTERIZED BY
      gsmCellBasicPackage,
      gsmCellMandatoryPackageR54,
      "3GPP TS 32.111-4 Release 6":x721AlarmNotificationsPackage;
   CONDITIONAL PACKAGES
      "Rec. M.3100: 1995":createDeleteNotificationsPackage
          PRESENT IF
             "the objectCreation and the objectDeletion notifications defined in
              ITU-T Rec. X.721 are supported by an instance of this class.",
      "Rec. M.3100: 1995":attributeValueChangeNotificationPackage
          PRESENT IF
             "the attributeValueChange notification defined in ITU-T Rec. X.721
```

```
              is supported by an instance of this class.",
      gsmCellOptionalPackage
          PRESENT IF
              "the attributes defined in this package are supported by an instance
               of this class.";
REGISTERED AS {ts32-654ObjectClass 7};
```

-- 5.1.4 externalGsmCell

```
externalGsmCell MANAGED OBJECT CLASS
   DERIVED FROM
      "3GPP TS 32.624 Release 6":managedFunction;
   CHARACTERIZED BY
      externalGsmCellBasicPackage,
      externalGsmCellMandatoryPackage;
   CONDITIONAL PACKAGES
      "Rec. M.3100: 1995":createDeleteNotificationsPackage
          PRESENT IF
             "the objectCreation and the objectDeletion notifications defined in
              ITU-T Rec. X.721 are supported by an instance of this class.",
      "Rec. M.3100: 1995":attributeValueChangeNotificationPackage
          PRESENT IF
             "the attributeValueChange notification defined in ITU-T Rec. X.721
              is supported by an instance of this class.",
     gsmCellOptionalPackage
          PRESENT IF
             "the attributes defined in this package are supported by an instance of this class.";
REGISTERED AS {ts32-654ObjectClass 4};
```

-- 5.1.5 gsmRelation

```
gsmRelation MANAGED OBJECT CLASS
   DERIVED FROM
      "Rec. X.721 | ISO/IEC 10165-2 : 1992":top;
   CHARACTERIZED BY
      gsmRelationBasicPackage;
   CONDITIONAL PACKAGES
      gsmRelationOptionalPackage
          PRESENT IF
             "the attributes defined in this package are supported by an instance of this class.",
      "Rec. M.3100: 1995":createDeleteNotificationsPackage
          PRESENT IF
             "the objectCreation and the objectDeletion notifications defined in
              ITU-T Rec. X.721 are supported by an instance of this class.",
      "Rec. M.3100: 1995":attributeValueChangeNotificationPackage
          PRESENT IF
             "the attributeValueChange notification defined in ITU-T Rec. X.721
              are supported by an instance of this class.";
REGISTERED AS {ts32-654ObjectClass 5};
```

-- 5.1.6 externalBssFunction

```
externalBssFunction MANAGED OBJECT CLASS
   DERIVED FROM
      "3GPP TS 32.624 Release 6":managedFunction;
   CHARACTERIZED BY
      externalBssFunctionBasicPackage;
   CONDITIONAL PACKAGES
      "Rec. M.3100: 1995":createDeleteNotificationsPackage
          PRESENT IF
             "the objectCreation and the objectDeletion notifications defined in
              ITU-T Rec. X.721 are supported by an instance of this class.",
      "Rec. M.3100: 1995":attributeValueChangeNotificationPackage
          PRESENT IF
             "the attributeValueChange notification defined in ITU-T Rec. X.721
              is supported by an instance of this class.";
REGISTERED AS {ts32-654ObjectClass 6};
```

-- 5.2 Packages

-- 5.2.1 bssFunctionBasicPackage

```
bssFunctionBasicPackage PACKAGE
   BEHAVIOUR
      bssFunctionBasicPackageBehaviour;
   ATTRIBUTES
      bssFunctionId   GET;
REGISTERED AS {ts32-654Package 1};

bssFunctionBasicPackageBehaviour BEHAVIOUR
DEFINED AS
   "The Managed Object Class bssFunction represents BSS functionality.";
```

-- 5.2.2 btsSiteMgrBasicPackage

```
btsSiteMgrBasicPackage PACKAGE
   BEHAVIOUR
      btsSiteMgrBasicPackageBehaviour;
   ATTRIBUTES
      btsSiteMgrId   GET;
REGISTERED AS {ts32-654Package 2};

btsSiteMgrBasicPackageBehaviour BEHAVIOUR
DEFINED AS
   "The 'BtsSiteMgr' managed object contains site specific information for a BTS site.";
```

-- 5.2.3 btsSiteMgrGeoPositionPackage

```
btsSiteMgrGeoPositionPackage PACKAGE
   BEHAVIOUR
      btsSiteMgrGeoPositionPackageBehaviour;
   ATTRIBUTES
      longitude   GET-REPLACE,
      latitude    GET-REPLACE;
REGISTERED AS {ts32-654Package 3};

btsSiteMgrGeoPositionPackageBehaviour BEHAVIOUR
DEFINED AS
   "This package contains the attributes describing the geographic position of a BTS site.";
```

-- 5.2.4 gsmCellBasicPackage

```
gsmCellBasicPackage PACKAGE
   BEHAVIOUR
      gsmCellBasicPackageBehaviour;
   ATTRIBUTES
      gsmCellId   GET;
REGISTERED AS {ts32-654Package 4};

gsmCellBasicPackageBehaviour BEHAVIOUR
DEFINED AS
   "The managed object class gsmCell represents the GSM radio cell.";
```

-- 5.2.5 gsmCellMandatoryPackage

```
gsmCellMandatoryPackageR54 PACKAGE
   BEHAVIOUR
      gsmCellMandatoryPackageR54Behaviour;
   ATTRIBUTES
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":cellAllocation          GET-REPLACE,
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":bsIdentityCode          GET-REPLACE,
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":cellGlobalIdentity      GET-REPLACE,
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":tsc                     GET-REPLACE,
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":rxLevAccessMin          GET-REPLACE,
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":msTxPwrMaxCCH           GET-REPLACE,
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":hoppingSequenceNumber   GET-REPLACE,
      plmnPermitted                                                              GET-REPLACE;
REGISTERED AS {ts32-654Package 12};
```

```
gsmCellMandatoryPackageR54Behaviour BEHAVIOUR
DEFINED AS
   "This package contains the elementary mandatory attributes of a gsmCell.";
```

-- 5.2.6 gsmCellOptionalPackage

```
gsmCellOptionalPackage PACKAGE
   BEHAVIOUR
      gsmCellOptionalPackageBehaviour;
   ATTRIBUTES
      "3GPP TS 32.644 Release 6":rac   GET-REPLACE,
      racc                             GET-REPLACE;
REGISTERED AS {ts32-654Package 6};

gsmCellOptionalPackageBehaviour BEHAVIOUR
DEFINED AS
   "This package contains the optional GPRS attributes of a gsmCell.";
```

-- 5.2.7 externalGsmCellBasicPackage

```
externalGsmCellBasicPackage PACKAGE
   BEHAVIOUR
      externalGsmCellBasicPackageBehaviour;
   ATTRIBUTES
      externalGsmCellId   GET;
REGISTERED AS {ts32-654Package 7};

externalGsmCellBasicPackageBehaviour BEHAVIOUR
DEFINED AS
   "This Managed Object Class represents a radio cell controlled by another IRPAgent. It is
    a necessary attribute for inter-system handover. This MOC is a subreplication of a
    MOC in another NEM.";
```

-- 5.2.8 externalGsmCellMandatoryPackage

```
externalGsmCellMandatoryPackage PACKAGE
   BEHAVIOUR
      externalGsmCellMandatoryPackageBehaviour;
   ATTRIBUTES
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":bsIdentityCode       GET-REPLACE,
      "ETS 300 622: June 1996 (GSM 12.20 version4.2.1)":cellGlobalIdentity   GET-REPLACE,
      "ETS 300 622: June 1996 (GSM 12.20 version4.2.1)":bcchFrequency        GET-REPLACE;
REGISTERED AS {ts32-654Package 8};

externalGsmCellMandatoryPackageBehaviour BEHAVIOUR
DEFINED AS
   "This package contains the elementary mandatory attributes of a externalGsmCell.";
```

-- 5.2.9 gsmRelationBasicPackage

```
gsmRelationBasicPackage PACKAGE
   BEHAVIOUR
      gsmRelationBasicPackageBehaviour;
   ATTRIBUTES
      gsmRelationId                    GET,
     "3GPP TS 32.644 Release 6":adjacentCell   GET-REPLACE;
REGISTERED AS {ts32-654Package 9};

gsmRelationBasicPackageBehaviour BEHAVIOUR
DEFINED AS
   "The 'GsmRelation' managed object contains radio network related parameters for the relation
    to the 'GsmCell' or 'ExternalGsmCell' managed object. Note: In handover relation terms, the
    cell containing the GSM Relation object is the source cell for the handover. The cell referred
    to in the GSM 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.";
```

-- 5.2.10 gsmRelationOptionalPackage

```
gsmRelationOptionalPackage PACKAGE
   BEHAVIOUR
```

```
      gsmRelationOptionalPackageBehaviour;
   ATTRIBUTES
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":bsIdentityCode  GET-REPLACE,
      "3GPP TS 32.644 Release 6":lac                                     GET-REPLACE,
      "ETS 300 622: June 1996 (GSM 12.20 version 4.2.1)":bcchFrequency   GET-REPLACE;
REGISTERED AS {ts32-654Package 10};

gsmRelationOptionalPackageBehaviour BEHAVIOUR
DEFINED AS
   "This package contains the optional attributes of a gsmRelation.";
```

-- 5.2.11 ExternalBssFunctionBasicPackage

```
externalBssFunctionBasicPackage PACKAGE
   BEHAVIOUR
      externalBssFunctionBasicPackageBehaviour;
   ATTRIBUTES
      externalBssFunctionId   GET;
REGISTERED AS {ts32-654Package 11};

externalBssFunctionBasicPackageBehaviour BEHAVIOUR
DEFINED AS
   "The Managed Object Class externalBssFunction represents external BSS functionality.";
```

-- 5.3 Attributes

-- 5.3.1 bssFunctionId

```
bssFunctionId ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.GeneralObjectId;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      bssFunctionIdBehaviour;
REGISTERED AS {ts32-654Attribute 1};

bssFunctionIdBehaviour BEHAVIOUR
DEFINED AS
   "This attribute identifies a bssFunction object.";
```

-- 5.3.2 btsSiteMgrId

```
btsSiteMgrId ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.GeneralObjectId;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      btsSiteMgrIdBehaviour;
REGISTERED AS {ts32-654Attribute 2};

btsSiteMgrIdBehaviour BEHAVIOUR
DEFINED AS
   "This attribute identifies a btsSiteMgr object.";
```

-- 5.3.3 longitude

```
longitude ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.Longitude;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      longitudeBehaviour;
REGISTERED AS {ts32-654Attribute 3};

longitudeBehaviour BEHAVIOUR
DEFINED AS
   "Used for geographical positioning of the sitemanager.";
```

-- 5.3.4 latitude

```
latitude ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.Latitude;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      latitudeBehaviour;
REGISTERED AS {ts32-654Attribute 4};

latitudeBehaviour BEHAVIOUR
DEFINED AS
   "Used for geographical positioning of the sitemanager.";
```

-- 5.3.5 gsmCellId

```
gsmCellId ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.GeneralObjectId;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      gsmCellIdBehaviour;
REGISTERED AS {ts32-654Attribute 5};

gsmCellIdBehaviour BEHAVIOUR
DEFINED AS
   "Cell Identity (Ref GSM 03.03).";
```

-- 5.3.6 racc

```
racc ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.Racc;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      raccBehaviour;
REGISTERED AS {ts32-654Attribute 7};

raccBehaviour BEHAVIOUR
DEFINED AS
   "Routing Area Colour Code, RACC.";
```

-- 5.3.7 gsmRelationId

```
gsmRelationId ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.GeneralObjectId;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      gsmRelationIdBehaviour;
REGISTERED AS {ts32-654Attribute 8};

gsmRelationIdBehaviour BEHAVIOUR
DEFINED AS
   "This attribute identifies a gsmRelation object.";
```

-- 5.3.8 externalGsmCellId

```
externalGsmCellId ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.GeneralObjectId;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      externalGsmCellIdBehaviour;
REGISTERED AS {ts32-654Attribute 9};

externalGsmCellIdBehaviour BEHAVIOUR
DEFINED AS
```

```
   "This attribute identifies a externalGsmCell object.";
```

-- 5.3.9 externalBssFunctionId

```
externalBssFunctionId ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.GeneralObjectId;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      externalBssFunctionIdBehaviour;
REGISTERED AS {ts32-654Attribute 10};

externalBssFunctionIdBehaviour BEHAVIOUR
DEFINED AS
   "This attribute identifies an externalBssFunction object.";
```

-- 5.3.10 plmnPermitted

```
plmnPermitted ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-654TypeModule.PlmnPermitted;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      plmnPermittedBehaviour;
REGISTERED AS {ts32-654Attribute 11};

plmnPermittedBehaviour BEHAVIOUR
DEFINED AS
   "Network Color Code permitted as defined by the NCC_PERMITTED parameter
    specified in 3GPP TS 45.008";
```

-- 5.4 Name Binding

-- 5.4.1 bssFunction - managedElement

```
bssFunction-managedElement NAME BINDING
   SUBORDINATE OBJECT CLASS
      bssFunction;
   NAMED BY SUPERIOR OBJECT CLASS
      "3GPP TS 32.624 Release 6":managedElement;
   WITH ATTRIBUTE
      bssFunctionId;
   BEHAVIOUR
      bssFunction-managedElementBehaviour;
   CREATE
      WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
   DELETE
      ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-654NameBinding 1};

bssFunction-managedElementBehaviour BEHAVIOUR
DEFINED AS
   "The name binding represents a relationship in which a managedElement contains
    and controls a bssFunction. When automatic instance naming is used, the choice
    of name bindings is left as a local matter.";
```

-- 5.4.2 btsSiteMgr - bssFunction

```
btsSiteMgrR0600-bssFunction NAME BINDING
   SUBORDINATE OBJECT CLASS
      btsSiteMgrR0600;
   NAMED BY SUPERIOR OBJECT CLASS
      bssFunction;
   WITH ATTRIBUTE
      btsSiteMgrId;
   BEHAVIOUR
      btsSiteMgrR0600-bssFunctionBehaviour;
   CREATE
      WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
```

```
   DELETE
      ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-654NameBinding 20600};

btsSiteMgrR0600-bssFunctionBehaviour BEHAVIOUR
DEFINED AS
   "The name binding represents a relationship in which a bssFunction contains
    and controls a btsSiteMgr. When automatic instance naming is used, the choice
    of name bindings is left as a local matter.";
```

-- 5.4.3 gsmCell - btsSiteMgr

```
gsmCellR54-btsSiteMgrR0600 NAME BINDING
   SUBORDINATE OBJECT CLASS
      gsmCellR54;
   NAMED BY SUPERIOR OBJECT CLASS
      btsSiteMgrR0600;
   WITH ATTRIBUTE
      gsmCellId;
   BEHAVIOUR
      gsmCellR54-btsSiteMgrBehaviourR0600;
   CREATE
      WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
   DELETE
      ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-654NameBinding 70600};

gsmCellR54-btsSiteMgrBehaviourR0600 BEHAVIOUR
DEFINED AS
   "The name binding represents a relationship in which a btsSiteMgr contains
    and controls a gsmCellR54. When automatic instance naming is used, the choice
    of name bindings is left as a local matter.";
```

-- 5.4.4 gsmRelation - gsmCell

```
gsmRelation-gsmCellR54 NAME BINDING
   SUBORDINATE OBJECT CLASS
      gsmRelation;
   NAMED BY SUPERIOR OBJECT CLASS
      gsmCellR54;
   WITH ATTRIBUTE
      gsmRelationId;
   BEHAVIOUR
      gsmRelation-gsmCellR54Behaviour;
   CREATE
      WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
   DELETE
      ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-654NameBinding 8};

gsmRelation-gsmCellR54Behaviour BEHAVIOUR
DEFINED AS
   "The name binding represents a relationship in which a gsmCellR54 contains
    and controls a gsmRelation. When automatic instance naming is used, the choice
    of name bindings is left as a local matter.";
```

-- 5.4.5 externalGsmCell - subNetwork

```
externalGsmCell-subNetwork NAME BINDING
   SUBORDINATE OBJECT CLASS
      externalGsmCell;
   NAMED BY SUPERIOR OBJECT CLASS
      "3GPP TS 32.624 Release 6":subNetwork;
   WITH ATTRIBUTE
      externalGsmCellId;
   BEHAVIOUR
      externalGsmCell-subNetworkBehaviour;
   CREATE
      WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
   DELETE
      ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-654NameBinding 5};

externalGsmCell-subNetworkBehaviour BEHAVIOUR
```

```
DEFINED AS
   "The name binding represents a relationship in which a subNetwork contains
    and controls an externalGsmCell. When automatic instance naming is used, the choice
    of name bindings is left as a local matter.";
```

-- 5.4.6 vsDataContainer - bssFunction

Void.

-- 5.4.7 vsDataContainer - btsSiteMgr

Void.

-- 5.4.8 vsDataContainer - gsmCell

Void.

-- 5.4.9 vsDataContainer - gsmRelation

Void.

-- 5.4.10 externalBssFunction - subNetwork

```
externalBssFunction-subNetwork-R0600 NAME BINDING
   SUBORDINATE OBJECT CLASS
      externalBssFunction;
   NAMED BY SUPERIOR OBJECT CLASS
      "3GPP TS 32.624 Release 6":subNetwork;
   WITH ATTRIBUTE
      externalBssFunctionId;
   BEHAVIOUR
      externalBssFunction-subNetworkBehaviour;
   CREATE
      WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
   DELETE
      ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-654NameBinding 10};

externalBssFunction-subNetworkBehaviour BEHAVIOUR
DEFINED AS
   "The name binding represents a relationship in which a subNetwork contains
    and controls an externalBssFunction. When automatic instance naming is used, the choice
    of name bindings is left as a local matter.";
```

-- 5.4.11 externalGsmCell - externalBssFunction

```
externalGsmCell-externalBssFunction-R0610 NAME BINDING
   SUBORDINATE OBJECT CLASS
      externalGsmCell;
   NAMED BY SUPERIOR OBJECT CLASS
      "3GPP TS 32.624 Release 6":externalBssFunction;
   WITH ATTRIBUTE
      externalGsmCellId;
   BEHAVIOUR
      externalGsmCell-externalBssFunction;
   CREATE
      WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
   DELETE
      ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-654NameBinding 11};

externalGsmCell-externalBssFunction BEHAVIOUR
DEFINED AS
   "The name binding represents a relationship in which an externalBssFunction contains
    and controls an externalGsmCell. When automatic instance naming is used, the choice
    of name bindings is left as a local matter.";
```

-- 5.4.12 utranRelation - gsmCell

```
utranRelation-gsmCell-R0610 NAME BINDING
   SUBORDINATE OBJECT CLASS
      utranRelation;
   NAMED BY SUPERIOR OBJECT CLASS
      "3GPP TS 32.624 Release 6":gsmCell;
   WITH ATTRIBUTE
      utranRelationId;
   BEHAVIOUR
      utranRelation-gsmCell;
   CREATE
      WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
   DELETE
      ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-654NameBinding 12};

utranRelation-gsmCell BEHAVIOUR
DEFINED AS
   "The name binding represents a relationship in which an gsmCell contains
    and controls an utranRelation. When automatic instance naming is used, the choice
    of name bindings is left as a local matter.";
```

6 ASN.1 Definitions

```
TS32-654TypeModule {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
umts-Operation-Maintenance(3) ts-32-654(654) informationModel(0) asn1Module(2) version1(1)}


DEFINITIONS IMPLICIT TAGS ::=
BEGIN

--EXPORTS everything

IMPORTS

GeneralObjectId
   FROM TS32-624TypeModule {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
   umts-Operation-Maintenance(3) ts32-624(624) informationModel(0) asn1Module(2) version1(1)}

Rac
   FROM TS32-644TypeModule {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
   umts-Operation-Maintenance(3) ts-32-644(644) informationModel(0) asn1Module(2) version1(1)};


-- 3GPP TS 32.654 related Object Identifiers

baseNodeUMTS           OBJECT IDENTIFIER ::= {itu-t(0) identified-organization(4) etsi(0)
                                              mobileDomain(0) umts-Operation-Maintenance(3)}

ts32-654               OBJECT IDENTIFIER ::= {baseNodeUMTS ts32-654(654)}
ts32-654InfoModel      OBJECT IDENTIFIER ::= {ts32-654 informationModel(0)}

ts32-654ObjectClass    OBJECT IDENTIFIER ::= {ts32-654InfoModel managedObjectClass(3)}
ts32-654Package        OBJECT IDENTIFIER ::= {ts32-654InfoModel package(4)}
ts32-654Parameter      OBJECT IDENTIFIER ::= {ts32-654InfoModel parameter(5)}
ts32-654NameBinding    OBJECT IDENTIFIER ::= {ts32-654InfoModel nameBinding(6)}
ts32-654Attribute      OBJECT IDENTIFIER ::= {ts32-654InfoModel attribute(7)}
ts32-654Action         OBJECT IDENTIFIER ::= {ts32-654InfoModel action(9)}
ts32-654Notification   OBJECT IDENTIFIER ::= {ts32-654InfoModel notification(10)}


-- Start of 3GPP SA5 own definitions

Longitude ::= INTEGER

Latitude ::= INTEGER

PlmnPermitted ::= INTEGER

Racc ::= INTEGER

END -- of TS32-654TypeModule
```

Annex A (informative): List of assigned Object Identifiers

This annex provides a list with all Object Identifiers (OIDs) that have been assigned in TS 32.654 in Release 5 up to V5.5.0 and in Release 6 up to the latest version. These OIDs shall not be assigned to new objects.

Basic Object Name	Name and OID of the current TS Version	Name and OIDs of previous TS Versions
Managed Object Classes		
bssFunction	Name: bssFunction OID : ts32-654ObjectClass 1	--
btsSiteMgr	Name: btsSiteMgrR0600 OID : ts32-654ObjectClass 20600	Name: btsSiteMgr OID : ts32-654ObjectClass 2
gsmCell	Name: gsmCellR54 OID : ts32-654ObjectClass 7	Name: gsmCell OID : ts32-654ObjectClass 3
Packages		
bssFunctionBasicPackage	Name: bssFunctionBasicPackage OID : ts32-654Package 1	--
btsSiteMgrBasicPackage	Name: btsSiteMgrBasicPackage OID : ts32-654Package 2	--
btsSiteMgrGeoPositionPackage	Name: btsSiteMgrGeoPositionPackage OID : ts32-654Package 3	--
gsmCellBasicPackage	Name: gsmCellBasicPackage OID : ts32-654Package 4	--
gsmCellMandatoryPackage	Name: gsmCellMandatoryPackageR54 OID : ts32-654Package 12	Name: gsmCellMandatoryPackage OID : ts32-654Package 5
gsmCellOptionalPackage	Name: gsmCellOptionalPackage OID : ts32-654Package 6	--
externalGsmCellBasicPackage	Name: externalGsmCellBasicPackage OID : ts32-654Package 7	--
externalGsmCellMandatoryPackage	Name: externalGsmCellMandatoryPackage OID : ts32-654Package 8	--
gsmRelationBasicPackage	Name: gsmRelationBasicPackage OID : ts32-654Package 9	--
gsmRelationOptionalPackage	Name: gsmRelationOptionalPackage OID : ts32-654Package 10	--
externalBssFunctionBasicPackage	Name: externalBssFunctionBasicPackage OID : ts32-654Package 11	--
Actions		
Notifications		
Attributes		
bssFunctionId	Name: bssFunctionId OID : ts32-654Attribute 1	--
btsSiteMgrId	Name: btsSiteMgrId OID : ts32-654Attribute 2	--
longitude	Name: longitude OID : ts32-654Attribute 3	--
latitude	Name: latitude OID : ts32-654Attribute 4	--
gsmCellId	Name: gsmCellId OID : ts32-654Attribute 5	--
racc	Name: racc OID : ts32-654Attribute 7	--
gsmRelationId	Name: gsmRelationId OID : ts32-654Attribute 8	--
externalGsmCellId	Name: externalGsmCellId OID : ts32-654Attribute 9	--
externalBssFunctionId	Name: externalBssFunctionId OID : ts32-654Attribute 10	--
plmnPermitted	Name: plmnPermitted OID : ts32-654Attribute 11	--
Parameters		
Name Bindings		
bssFunction-managedElement	Name: bssFunction-managedElement OID : ts32-654NameBinding 1	--
btsSiteMgr-bssFunction	Name: btsSiteMgrR0600-bssFunction OID : ts32-654NameBinding 20600	Name: btsSiteMgr-bssFunction OID : ts32-654NameBinding 2

gsmCell-btsSiteMgr	Name: gsmCellR54-btsSiteMgrR0600 OID : ts32-654NameBinding 70600	Name: gsmCellR54-btsSiteMgr OID : ts32-654NameBinding 7 Name: gsmCell-btsSiteMgr OID : ts32-654NameBinding 3
gsmRelation-gsmCell	Name: gsmRelation-gsmCellR54 OID : ts32-654NameBinding 8	Name: gsmRelation-gsmCell OID : ts32-654NameBinding 4
externalGsmCell-subNetwork	Name: externalGsmCell-subNetwork OID : ts32-654NameBinding 5	--
vsDataContainer-bssFunction	--	Name: vsDataContainer-bssFunction OID : ts32-654NameBinding 6
vsDataContainer-btsSiteMgr	--	Name: vsDataContainer-btsSiteMgr OID : ts32-654NameBinding 7
vsDataContainer-gsmCell	--	Name: vsDataContainer-gsmCell OID : ts32-654NameBinding 9
vsDataContainer-gsmRelation	--	Name: vsDataContainer-gsmRelation OID : ts32-654NameBinding 9
externalBssFunction-subNetwork	Name: externalBssFunction-subNetwork-R0600 OID : ts32-654NameBinding 10	Name: externalBssFunction-subNetwork OID : ts32-654NameBinding 6
externalGsmCell- externalBssFunction	Name:externalGsmCell- externalBssFunction- R0610 OID : ts32-654NameBinding 11	--
utranRelation-gsmCell	Name: utranRelation-gsmCell-R0610 OID : ts32-654NameBinding 12	--

Annex B (informative): Change history

Change history								
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Cat**	**Old**	**New**
Jun 2001	S_12	SP-010283	--	--	Approved at TSG SA #12 and placed under Change Control	--	2.0.0	4.0.0
Sep 2001	S_13	SP-010478	0001	--	Correction due to TS renumbering	F	4.0.0	4.1.0
Sep 2001	S_13	SP-010477	0002	--	Addition of mcc and mnc in the object model of GERAN	F	4.0.0	4.1.0
Dec 2002	S_18	SP-020749	0003	--	Alignment of the CMIP SS with the Rel-5 version of the IS in 32.652	F	4.1.0	5.0.0
Jun 2003	S_20	SP-030283	0005	--	Removal of relationType	A	5.0.0	5.1.0
Jun 2003	S_20	SP-030286	0006	--	Alignment of object class names to externalGsmCell - Alignment with 32.624	F	5.0.0	5.1.0
Sep 2003	S_21	SP-030418	0007	--	Inclusion of ExternalBssFunction - Alignment with 32.652	F	5.1.0	5.2.0
Dec 2003	S_22	SP-030642	0008	--	Add notifications to functional objects - Align with 32.652 (IS)	F	5.2.0	5.3.0
Jun 2004	S_24	SP-040257	0009	--	Correction of the type of the plmnPermittd attribute	F	5.3.0	5.4.0
Sep 2004	S_25	SP-040593	0010	--	Add the state change notification to the MOC btsSiteMgr – Align the CMIP SS with 32.652 CM; GERAN network resources IRP NRM	B	5.4.0	6.0.0
Mar 2006	SA_31	SP-060105	0011	--	Add missing name containment relationship - Align with 32.652 Information Service (IS)	F	6.0.0	6.1.0