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Technical Specification

**Digital cellular telecommunications system (Phase 2+);
Telecommunication management;
Configuration Management (CM);
GERAN network resources Integration Reference Point (IRP):
Common Management Information Protocol (CMIP)
Solution Set (SS)
(3GPP TS 32.654 version 6.1.0 Release 6)**



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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.
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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 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	bslIdentityCode.ncc (GSM 12.20 [10])	M
bcc	bslIdentityCode.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 - btsSiteMgrgsmCellR54-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 - gsmCellgsmRelation-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 - subNetworkexternalGsmCell-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 resourcesIRP 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

History

Document history		
V6.0.0	September 2004	Publication
V6.1.0	March 2006	Publication