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Technical Specification

Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Self-Organizing Networks (SON);
Policy Network Resource Model (NRM) Integration Reference Point (IRP);
Solution Set (SS) definitions
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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

where:

- x the first digit:
  - 1 presented to TSG for information;
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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:

32.521: Self-Organizing Networks (SON) Policy Network Resource Model (NRM) Integration Reference Point (IRP): Requirements

32.522: Self-Organizing Networks (SON) Policy Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)

32.526: Self-Organizing Networks (SON) Policy Network Resource Model (NRM) Integration Reference Point (IRP): Solution Set (SS) definitions

1 Scope

The present document specifies the Solution Set definitions for the IRP whose semantics is specified in 3GPP TS 32.522 [4] SON Policy Network Resource Model IRP: Information Service (IS).

This Solution Set definitions specification is related to 3GPP TS 32.522 V10.1.X [4].

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 TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".

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

[4] 3GPP TS 32.522: "Telecommunication management; Self-Organizing Networks (SON) Policy Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)".

[5] 3GPP TS 32.616: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP); Solution Set (SS) definitions".

[6] 3GPP TS 32.606: "Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP); Solution Set (SS) definitions".

[7] W3C REC-xml-20001006: "Extensible Markup Language (XML) 1.0 (Second Edition)".

[8] W3C REC-xmlschema-0-20010502: "XML Schema Part 0: Primer".

[9] W3C REC-xmlschema-1-20010502: "XML Schema Part 1: Structures".

[10] W3C REC-xmlschema-2-20010502: "XML Schema Part 2: Datatypes".

[11] W3C REC-xml-names-19990114: "Namespaces in XML".

[12] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [2], 3GPP TS 32.102 [3] and TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TS 32.522 [4], 3GPP TS 32.101 [2], 3GPP TS 32.102 [3] and TR 21.905 [1], in that order.

XML file: file containing an XML document

XML document: composed of the succession of an optional XML declaration followed by a root XML element

NOTE 1: See [7]; in the scope of the present document.

XML declaration: it specifies the version of XML being used

NOTE 2: See [7].

XML element: has a type, is identified by a name, may have a set of XML attribute specifications and is either composed of the succession of an XML start-tag followed by the XML content of the XML element followed by an XML end-tag, or composed simply of an XML empty-element tag; each XML element may contain other XML elements

NOTE 3: See [7].

empty XML element: having an empty XML content; an empty XML element still possibly has a set of XML attribute specifications; an empty XML element is either composed of the succession of an XML start-tag directly followed by an XML end-tag, or composed simply of an XML empty-element tag

NOTE 4: See [7].

XML content (of an XML element): empty if the XML element is simply composed of an XML empty-element tag; otherwise the part, possibly empty, of the XML element between its XML start-tag and its XML end-tag

XML start-tag: the beginning of a non-empty XML element is marked by an XML start-tag containing the name and the set of XML attribute specifications of the XML element

NOTE 5: See [7].

XML end-tag: the end of a non-empty XML element is marked by an XML end-tag containing the name of the XML element

NOTE 6: See [7].

XML empty-element tag: composed simply of an empty-element tag containing the name and the set of XML attribute specifications of the XML element

NOTE 7: See [7].

XML attribute specification: has a name and a value

NOTE 8: See [7].

DTD: defines structure and content constraints to be respected by an XML document to be valid with regard to this DTD

NOTE 9: See [7].

XML schema: more powerful than a DTD, an XML schema defines structure and content constraints to be respected by an XML document to conform with this XML schema; through the use of XML namespaces several XML schemas can be used together by a single XML document; an XML schema is itself also an XML document that shall conform with the XML schema for XML schemas

NOTE 10: See [8], [9] and [10].

XML namespace: enables qualifying element and attribute names used in XML documents by associating them with namespaces identified by different XML schemas

NOTE 11: See [11], in the scope of the present document.

XML complex type: defined in an XML schema; cannot be directly used in an XML document; can be the concrete type or the derivation base type for an XML element type or for another XML complex type; ultimately defines constraints for an XML element on its XML attribute specifications and/or its XML content

NOTE 12: See [8], [9] and [10].

XML element type: declared by an XML schema; can be directly used in an XML document; as the concrete type of an XML element, directly or indirectly defines constraints on its XML attribute specifications and/or its XML content; can also be the concrete type or the derivation base type for another XML element type

NOTE 13: See [8], [9] and [10].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1], 3GPP TS 32.522 [4] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TS 32.522 [4], 3GPP TS 32.101 [2], 3GPP TS 32.102 [3] and TR 21.905 [1], in that order.

CM	Configuration Management
CORBA	Common Object Request Broker Architecture
DTD	Document Type Definition
eNodeB	evolved NodeB
IDL	Interface Definition Language (OMG)
IOC	Information Object Class
IRP	Integration Reference Point
IS	Information Service
MO	Managed Object
MOC	Managed Object Class
NRM	Network Resource Model
OMG	Object Management Group
SS	Solution Set
XML	eXtensible Markup Language

4 Solution Set definitions

This specification defines the following 3GPP SON Policy NRM IRP Solution Set definitions:

- 3GPP SON Policy NRM IRP CORBA SS (see Annex A)
- 3GPP SON Policy NRM IRP XML definitions (see Annex B)

Annex A (normative): CORBA Solution Set

This annex contains the CORBA Solution Set for the IRP whose semantics is specified in SON Policy NRM IRP: Information Service (3GPP TS 32.522 [4]).

A.1 Architectural Features

The overall architectural feature of CS IRP is specified in 3GPP TS 32.522 [4].

This clause specifies features that are specific to the CORBA SS.

A.1.1 Syntax for Distinguished Names and Versions

The syntax of a Distinguished Name is defined in 3GPP TS 32.300 [12].

A.2 Mapping

A.2.1 General mapping

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.

A.2.2 Information Object Class (IOC) mapping

A.2.2.1 IOC SONTargets

Attribute of IOC SONTargets in 3GPP TS 32.522 [4]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
hoFailureRate	hoFailureRate	GenericSONPolicyNRMAttributeTypes:: HooTarget	O *)	M	M
rrcConnection EstablishmentFailure RateCharacteristic	rrcConnection EstablishmentFailure RateCharacteristic	GenericSONPolicyNRMAttributeTypes: CacTargetLink	O *)	M	M
rrcConnection AbnormalReleaseRate Characteristic	rrcConnection AbnormalReleaseRate Characteristic	GenericSONPolicyNRMAttributeTypes: CacTargetLink	O *)	M	M
eRabSetupFailure RateCharacteristic	eRabSetupFailure RateCharacteristic	GenericSONPolicyNRMAttributeTypes: CacTargetLink	O *)	M	M
eRabAbnormalRelease RateCharacteristic	eRabAbnormalRelease RateCharacteristic	GenericSONPolicyNRMAttributeTypes: CacTargetLink	O *)	M	M
rachOptAccessProbability	rachOptAccessProbability	GenericSONPolicyNRMAttributeTypes: ROTargetList	CM **)	M	M
rachOptAccessDelayProbability	rachOptAccessDelayProbability	GenericSONPolicyNRMAttributeTypes: ROTargetList	CM **)	M	M
*) NOTE 1: At least one of the attributes shall be supported. **) NOTE 2: Only one of these attributes shall be present.					

A.2.2.2 IOC SONControl

Attribute of IOC SONTargets in 3GPP TS 32.522 [4]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
hooSwitch	hooSwitch	boolean	CM	M	M
lboSwitch	lboSwitch	boolean	CM	M	M
cocSwitch	cocSwitch	boolean	O *)	M	M
esSwitch	esSwitch	boolean	CM *)	M	M
roSwitch	roSwitch	boolean	CM	M	M
NOTE: For all conditional qualifiers, see attribute constraints in TS 32.522 [4].					

A.2.2.3 IOC ESPolicies

Attribute of IOC SONTargets in 3GPP TS 32.522 [4]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
esActivationOriginalCellLoadParameters	esActivationOriginalCellLoadParameters	CellLoadParameters	O	M	M
esActivationCandidateCellsLoadParameters	esActivationCandidateCellsLoadParameters	CellLoadParameters	O	M	M
esDeactivationCandidateCellsLoadParameters	esDeactivationCandidateCellsLoadParameters	CellLoadParameters	O	M	M

A.3 Solution Set definitions

A.3.1 IDL definition structure

Clause A.3.2 defines the constants and types used by the SON Policy NRM IRP.

A.3.2 IDL specification "SONPolicyNetworkResourcesNRMDefs.idl"

```
//File:SONPolicyNetworkResourcesNRMDefs.idl
#ifndef _SONPOLICYNETWORKRESOURCESNRMDEFS_IDL_
#define _SONPOLICYNETWORKRESOURCESNRMDEFS_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 SONPolicyNetworkResourcesNRMDefs
{
    /*
     * Definitions for MO class SONTargets
     */
    interface SONTargets: GenericNetworkResourcesNRMDefs::Top
    {
        const string CLASS = "SONTargets";
        // Attribute Names
        //
        const string hoFailureRate = "hoFailureRate";
        const string rrcConnectionEstablishmentFailureRateCharacteristic =
"rrcConnectionEstablishmentFailureRateCharacteristic";
        const string rrcConnectionAbnormalReleaseRateCharacteristic =
"rrcConnectionAbnormalReleaseRateCharacteristic";
        const string eRabSetupFailureRateCharacteristic = "eRabSetupFailureRateCharacteristic";
        const string eRabAbnormalReleaseRateCharacteristic =
"eRabAbnormalReleaseRateCharacteristic";
        const string rachOptAccessProbability = "rachOptAccessProbability";
        const string rachOptAccessDelayProbability = "rachOptAccessDelayProbability";
    };

    /*
     * Definitions for MO class SONControl
     */
    interface SONControl: GenericNetworkResourcesNRMDefs::Top
    {
        const string CLASS = "SONControl";
        // Attribute Names
        //
        const string hooSwitch = "hooSwitch";
        const string lboSwitch = "lboSwitch";
        const string cocSwitch = "cocSwitch";
        const string esSwitch = "esSwitch";
```

```
        const string roSwitch = "roSwitch";
    };


    /*
     * Definitions for MO class ESPolicies
     */
    interface ESPolicies: GenericNetworkResourcesNRMDefs::Top
    {
        const string CLASS = "ESPolicies";
        // Attribute Names
        //
        const string esActivationOriginalCellLoadParameters =
"esActivationOriginalCellLoadParameters";
        const string esActivationCandidateCellsLoadParameters =
"esActivationCandidateCellsLoadParameters";
        const string esDeactivationCandidateCellsLoadParameters =
"esDeactivationCandidateCellsLoadParameters";
    };

};

module GenericSONPolicyNRMAttributeTypes
{
    /*
     * Composite Availble Capacity (CAC)target type related to RRC/eRAB setup
     */
    struct CacTarget
    {
        unsigned short lower_end_of_cac_range;
        unsigned short upper_end_of_cac_range;
        unsigned short target_value;
        unsigned short target_priority;
    };
    typedef sequence<CacTarget> CacTargetList;

    struct CacTargetLink
    {
        CacTargetList uplink_cac_target;
        CacTargetList downlink_cac_target;
    };

    /*
     * HOO target type
     */
    struct HooTarget
    {
        unsigned short target_value;
        unsigned short target_priority;
    };
    typedef sequence<HooTarget> HooTargetList;

    /*
     * Cell load parameters type related to energy saving
     */
    struct CellLoadParameters
    {
        unsigned short load_threshold;
        unsigned short time_duration;
    };
    /*
     * Rach Optimization target type
     */
    enum ROTargetType
    {
        RO_ACCESS_PROBABILITY,
        RO_ACCESS_DELAY_PROBABILITY
    };

    enum ROProbability
   {
       25percent,
...    50percent,
       75percent,
       90percent
   };

    typedef unsigned short (10..560) AccessDelayRange;
```

```
    typedef unsigned short (1..200) AccessNumberAttemptRange;

    struct accessProbabilityROTarget
    {
       ROProbability rOProbability;
       AccessNumberAttemptRange attemptNumber;
    };

    struct accessDelayProbabilityROTarget
    {
       ROProbability rOProbability;
       AccessDelayRange accessDelay;
    };

    typedef sequence <accessProbabilityROTarget,4> AccessProbabilityROTargetSet;
    typedef sequence <accessDelayProbabilityROTarget,4> AccessDelayProbabilityROTargetSet;

    union RachOptTarget switch (ROTargetType)
   {
      case RO_ACCESS_PROBABILITY: AccessProbabilityROTargetSet aPTargets;
      case RO_ACCESS_DELAY_PROBABILITY: AccessDelayProbabilityROTargetSet aDPTargets;
   };

};
#endif // _SONPOLICYNETWORKRESOURCESNRMDEFS_IDL_
```

Annex B (normative): XML definitions

The annex specifies the XML definitions for the SON Policy NRM IRP as it applies to Itf-N, in accordance with SON NRM IRP IS definitions [4].

An application of these XML definitions is to build a configuration file for transfer with the Bulk CM IRP using either CORBA Solution Set or the SOAP Solution Set of 3GPP TS 32.616 [5]. For this annex, the basic part of the XML file format definition is provided by 3GPP TS 32.616 [5].

Other applications of these XML definitions are the SOAP solution sets of other IRPs that perform operations on managed objects, for example the Basic CM IRP SOAP SS of 3GPP TS 32.606 [6].

B.1 Architectural features

The overall architectural feature of SON Policy Network Resource Model IRP is specified in 3GPP TS 32.522 [4]. This clause specifies features that are specific to the XML definitions.

The XML definitions of this document specify the schema for a configuration content.

When using the XML definitions for a configuration file transfer with the Bulk CM IRP, using either CORBA Solution Set or SOAP Solution Set of 3GPP TS 32.616 [5], the basic part of the XML file format definition is provided by 3GPP TS 32.616 [5]. The XML definitions of this document provide the schema for the configuration content to be included in such a configuration file.

When using the XML definitions with a SOAP solution set of any interface IRP that perform operations on managed objects, for example the Basic CM IRP SOAP SS of 3GPP TS 32.606 [6], the XML definitions of this document provides the schema for the configuration content operated on by the interface IRP. Such configuration content can be name of managed object and, if applicable, IOC attributes.

B.1.1 Syntax for Distinguished Names

The syntax of a Distinguished Name is defined in 3GPP TS 32.300 [12].

B.2 Mapping

B.2.1 General mapping

An IOC maps to an XML element of the same name as the IOC's name in the IS. An IOC attribute maps to a sub-element of the corresponding IOC's XML element, and the name of this sub-element is the same as the attribute's name in the IS.

B.2.2 Information Object Class (IOC) mapping

The overall description of the file format of configuration data XML files is provided by 3GPP TS 32.616 [5].

Annex A of the present document defines the NRM-specific XML schema `sonPolicyNrm.xsd` for the SON Policy NRM IRP IS defined in 3GPP TS 32.522 [4].

XML schema `sonPolicyNrm.xsd` explicitly declares NRM-specific XML element types for the related NRM.

The definition of those NRM-specific XML element types complies with the generic mapping rules defined in 3GPP TS 32.616 [5].

B.3 Solution Set definitions

B.3.1 XML definition structure

Clause B.3.2 provides XML definitions of SON Policy NRM IRP IOCs as defined in 3GPP TS 32.522 [4].

B.3.2 XML Schema “sonPolicyNrm.xsd”

The following XML schema sonPolicyNrm.xsd is the NRM-specific schema for the SON Policy Network Resource Model IRP NRM defined in 3GPP TS 32.522 [4]:

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
  3GPP TS 32.526 SON Policy Network Resource Model IRP
  XML schema definition
  sonPolicyNrm.xsd
-->

<schema
  targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.526#sonPolicyNrm"
  elementFormDefault="qualified"
  attributeFormDefault="unqualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:xn="http://www.3gpp.org/ftp/specs/archive/32_series/32.626#genericNrm"
  xmlns:sp="http://www.3gpp.org/ftp/specs/archive/32_series/32.526#sonPolicyNrm"
>
  <import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.626#genericNrm"/>

  <!--SON Policy NRM IRP IS class associated XML elements -->

  <!-- CAC Range: 0~10000 -->
  <simpleType name="cacRange">
    <restriction base="unsignedShort">
        <maxInclusive value="10000"/>
    </restriction>
  </simpleType>

  <!-- Rate: representing a percentage -->
  <simpleType name="rateRange">
    <restriction base="unsignedShort">
      <maxInclusive value="100"/>
    </restriction>
  </simpleType>

  <!-- RACH Optimization Probability -->
  <simpleType name="ROProbability">
    <restriction base="unsignedShort">
      <enumeration value="25"/>
      <enumeration value="50"/>
      <enumeration value="75"/>
      <enumeration value="90"/>
    </restriction>
  </simpleType>

  <!-- Priority: 0~N. Lower the number, higher the priority -->
  <complexType name="LBOTarget">
    <sequence>
      <element name="lowerEndOfCacRange" type="sp:cacRange" minOccurs="0"/>
      <element name="upperEndOfCacRange" type="sp:cacRange" minOccurs="0"/>
      <element name="Rate" type="sp:rateRange" minOccurs="0"/>
      <element name="Priority" type="unsignedShort" minOccurs="0"/>
    </sequence>
  </complexType>

   <complexType name="LBOLinkTarget">
   <sequence>
    <element name="UplinkTarget" type="sp:LBOTarget" minOccurs="0"/>
    <element name="DownlinkTarget" type="sp:LBOTarget" minOccurs="0"/>
   </sequence>
   </complexType>
```

```
  <complexType name="HooTarget">
    <sequence>
      <element name="Rate" type="sp:rateRange" minOccurs="0"/>
      <element name="Priority" type="unsignedShort" minOccurs="0"/>
    </sequence>
  </complexType>

  <complexType name="CellLoadParameters">
    <sequence>
      <element name="LoadThreshold" type="sp:rateRange" minOccurs="0"/>
      <element name="TimeDuration" type="unsignedShort" minOccurs="0"/>
    </sequence>
  </complexType>

  <simpleType name="AccessDelayRange">
    <restriction base="unsignedShort">
      <minInclusive value="10"/>
      <maxInclusive value="560"/>
    </restriction>
  </simpleType>

  <complexType name="AccessDelayProbabilityROTarget">
    <sequence>
      <element name="Probability" type="sp:ROProbability"/>
      <element name="AccessDelay" type="sp:AccessDelayRange"/>
    </sequence>
  </complexType>

  <complexType name="AccessDelayProbabilityTargetSet">
    <sequence>
      <element name="AccessDelayProbabilityTarget" type="sp:AccessDelayProbabilityROTarget"
maxOccurs="4"/>
    </sequence>
  </complexType>


  <simpleType name="AccessNumberAttemptRange">
    <restriction base="unsignedShort">
      <minInclusive value="1"/>
      <maxInclusive value="200"/>
    </restriction>
  </simpleType>

  <complexType name="AccessProbabilityROTarget">
    <sequence>
      <element name="Probability" type="sp:ROProbability"/>
      <element name="AccessNumber" type="sp:AccessNumberAttemptRange"/>
    </sequence>
  </complexType>

  <complexType name="AccessProbabilityTargetSet">
    <sequence>
      <element name="AccessProbabilityTarget" type="sp:AccessProbabilityROTarget" maxOccurs="4"/>
    </sequence>
  </complexType>


  <element name="SONTarget">
    <complexType>
      <complexContent>
        <extension base="xn:NrmClass">
          <sequence>
            <element name="attributes" minOccurs="0">
              <complexType>
                <all>
                  <element name="hoFailureRate" type="sp:HooTarget" minOccurs="0"/>
                  <element name="rrcConnectionEstablishmentFailureRate" type="sp:LBOLinkTarget"
minOccurs="0"/>
                  <element name="rrcConnectionAbnormalReleaseRate" type="sp:LBOLinkTarget"
minOccurs="0"/>
                  <element name="eRabSetupFailureRate" type="sp:LBOLinkTarget" minOccurs="0"/>
                  <element name="eRabAbnormalReleaseRate" type="sp:LBOLinkTarget" minOccurs="0"/>
                  <choice minOccurs="0" maxOccurs="4">
                  <element name="rachOptAccessProbability" type="sp:AccessProbabilityTargetSet"/>
                  <element name="rachOptAccessDelayProbability"
type="sp:AccessDelayProbabilityTargetSet"/>
                  </choice>
                </all>
```

```
              </complexType>
            </element>
          </sequence>
        </extension>
      </complexContent>
    </complexType>
  </element>

  <element name="SONControl">
    <complexType>
      <complexContent>
        <extension base="xn:NrmClass">
          <sequence>
            <element name="attributes" minOccurs="0">
              <complexType>
                <all>
                  <!--Switch:ON/OFF-->
                  <element name="hooSwitch" type="boolean" minOccurs="0"/>
                  <element name="lboSwitch" type="boolean" minOccurs="0"/>
                  <element name="cocSwitch" type="boolean" minOccurs="0"/>
                  <element name="esSwitch" type="boolean" minOccurs="0"/>
                  <element name="roSwitch" type="boolean" minOccurs="0"/>
                </all>
              </complexType>
            </element>
          </sequence>
        </extension>
      </complexContent>
    </complexType>
  </element>

  <element name="ESPolicies">
    <complexType>
      <complexContent>
        <extension base="xn:NrmClass">
          <sequence>
            <element name="attributes" minOccurs="0">
              <complexType>
                <all>
                  <element name="esActivationOriginalCellLoadParameters"
type="sp:CellLoadParameters" minOccurs="0"/>
                  <element name="esActivationCandidateCellsLoadParameters"
type="sp:CellLoadParameters" minOccurs="0"/>
                  <element name="esDeactivationCandidateCellsLoadParameters"
type="sp:CellLoadParameters" minOccurs="0"/>
                </all>
              </complexType>
            </element>
          </sequence>
        </extension>
      </complexContent>
    </complexType>
  </element>

</schema>
```

Annex C (informative): Change history

Change history								
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Cat**	**Old**	**New**
2010-12	SP-50	SP-100767			Submitted to SA#50 for Information and Approval		0.0.1	1.0.0
2011-01	--	--	--	--	Publication of SA approved version	--	1.0.0	10.0.0
2011-03	SP-51	SP-110095	001	-	Correcting the support qualifiers of SONControl attributes - Align with 32.522 SON NRM IRP Information Service	F	10.0.0	10.1.0
2011-03	SP-51	SP-110100	002	1	Network Resource Model (NRM) for Energy Saving Management (ESM) Policies and Switch - Align with 32.522 SON NRM IRP Information Service	F	10.0.0	10.1.0
2011-03	SP-51	SP-110098	003	2	Introducing RACH optimization management - Align with updated 32.522	B	10.0.0	10.1.0
2011-03	SP-51	SP-110097	005	-	Add a new attribute into SONControl object class to switch on/off Cell Outage Compensation	B	10.0.0	10.1.0

History

Document history		
V10.1.0	April 2011	Publication