ETSI TS 128 303 V17.0.0 (2022-04)

LTE;
Telecommunication management;
Licensed Shared Access (LSA) Controller (LC)
Integration Reference Point (IRP);
Solution Set (SS) definitions
(3GPP TS 28.303 version 17.0.0 Release 17)

Reference
RTS/TSGS-0528303vh00

Keywords
LTE

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (https://ipr.etsi.org/).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM**® and the GSM logo are trademarks registered and owned by the GSM Association.

Legal Notice

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

The present document may refer to technical specifications or reports using their 3GPP identities. These shall be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

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;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

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:

28.301 LSA Controller (LC) Integration Reference Point (IRP); Requirements

28.302 LSA Controller (LC) Integration Reference Point (IRP); Information Service (IS)

28.303 LSA Controller (LC) Integration Reference Point (IRP); Solution Set (SS) definitions

1 Scope

The purpose of the present document is to define the mapping of the LSA Controller (LC) Integration Reference Point (IRP) (see 3GPP TS 28.302 [2]) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment and in a SOAP/WSDL environment.

This Solution Set specification is related to 3GPP TS 28.302 V14.0.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 TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 28.302: "Telecommunication Management; Licensed Shared Access (LSA) Controller (LC) Integration Reference Point (IRP); Information Service (IS)".

[3] W3C SOAP 1.1 specification: "Simple Object Access Protocol (SOAP) 1.1", (http://www.w3.org/TR/2000/NOTE-SOAP-20000508/)

[4] W3C WSDL 1.1 specification: "Web Services Description Language (WSDL) 1.1", (http://www.w3.org/TR/2001/NOTE-wsdl-20010315)

[5] W3C SOAP 1.2 specification: "SOAP Version 1.2 Part 1: Messaging Framework", (http://www.w3.org/TR/soap12-part1/)

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP 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 TR 21.905 [1].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

CORBA	Common Object Request Broker Architecture
OMG	Object Management Group
WSDL	Web Service Description Language

4 Solution Set Definitions

The present document defines the following Solution Set definitions:

Annex A provides the CORBA Solution Set.
Annex B provides the SOAP Solution Set.

Annex A (normative): CORBA Solution Set

This annex specifies the CORBA Solution Set for the IRP whose semantics are specified in 3GPP TS 28.302 [2].

The CORBA Solution Set is not provided in the present document.

Annex B (normative): SOAP Solution Set

This annex specifies the SOAP Solution Set for the IRP whose semantics are specified in 3GPP TS 28.302 [2].

B.1 Architectural features

B.1.1 Supported W3C specifications

The SOAP 1.1 specification [3] and WSDL 1.1 specification [4] are supported.

The SOAP 1.2 specification [5] is supported optionally.

The present document uses "document" style in the WSDL description.

The present document uses "literal" encoding style in the WSDL description.

B.1.3 Prefixes and namespaces

The present document uses a number of namespace prefixes throughout that are listed in table B.1.3.1.

Table B.1.3.1: Prefixes and Namespaces used in the present document

Prefix	Namespace
http	http://schemas.xmlsoap.org/wsdl/http/
soap	http://schemas.xmlsoap.org/wsdl/soap/
soapenc	http://schemas.xmlsoap.org/soap/encoding/
xs	http://www.w3.org/2001/XMLSchema
LCIRPLCSystem	http://www.3gpp.org/ftp/specs/archive/28_series/28303#LCIRPLCSystem
LCIRPNMData	http://www.3gpp.org/ftp/specs/archive/28_series/28303#LCIRPNMData
LCIRPLCRSystem	http://www.3gpp.org/ftp/specs/archive/28_series/28303#LCIRPLCRSystem

B.2 Mapping

B.2.1 Operation mapping

3GPP TS 28.302 [2] defines the semantics of operations. This chapter specifies the mapping of these operations to their SS equivalents.

Table B.2.1.1: Mapping from IS operations to SS equivalents (scenario 1, interface OperationsInvokedByNM)

IS operation (3GPP TS 28.302 [2])	SS operation	Port	Support Qualifier
requestLcRegistration	requestLcRegistration	LCIRPLCPort	M
requestLcDeRegistration	requestLcDeRegistration	LCIRPLCPort	M
getLSRAI	getLSRAI	LCIRPLCPort	M

Table B.2.1.2: Mapping from IS operations to SS equivalents (scenario 1, interface OperationsInvokedByLC)

IS operation (3GPP TS 28.302 [2])	SS operation	Port	Support Qualifier
getLSRAIConfirmation	getLSRAIConfirmation	LCIRPNMPort	M

Table B.2.1.3: Mapping from IS operations to SS equivalents (scenario 2, interface OperationsInvokedByNM)

IS operation (3GPP TS 28.302 [2])	SS operation	Port	Support Qualifier
cellsUpdate	cellsUpdate	LCIRPLCPort	M
cellsConstraintsSatisfied	cellsConstraintsSatisfied	LCIRPLCPort	M

Table B.2.1.4: Mapping from IS operations to SS equivalents (scenario 2, interface OperationsInvokedByLC)

IS operation (3GPP TS 28.302 [2])	SS operation	Port	Support Qualifier
cellsConstraintsUpdate	cellsConstraintsUpdate	LCIRPNMPort	M

B.2.2 Notification mapping

3GPP TS 28.302 [2] defines the semantics of notifications. This clause specifies the mapping of these notifications to their SS equivalents.

Table B.2.2.1: Mapping from IS operations to SS equivalents (scenario 1, interface NotificationsEmittedByLC)

IS notification (3GPP TS 28.302 [2])	SS notification	Port	Support Qualifier
notifyLCRegistration	notifyLCRegistration	LCIRPLCPort	M
notifyLCDeRegistration	notifyLCDeRegistration	LCIRPLCPort	M
notifyZoneCreation	notifyZoneCreation	LCIRPLCPort	M
notifyZoneDeletion	notifyZoneDeletion	LCIRPLCPort	M
notifyZoneModification	notifyZoneModification	LCIRPLCPort	M

Table B.2.2.2: Mapping from IS operations to SS equivalents (scenario 1, interface NotificationsEmittedByNM)

IS notification (3GPP TS 28.302 [2])	SS notification	Port	Support Qualifier
notifyLSRAIConfirmation	notifyLSRAIConfirmation	LCIRPNMPort	M

Table B.2.2.3: Mapping from IS operations to SS equivalents (scenario 2, interface NotificationsEmittedByLC)

IS notification (3GPP TS 28.302 [2])	SS notification	Port	Support Qualifier
notifyLCRegistration	notifyLCRegistration	LCIRPLCPort	M
notifyLCDeRegistration	notifyLCDeRegistration	LCIRPLCPort	M

Table B.2.2.4: Mapping from IS operations to SS equivalents (scenario 2, interface NotificationsEmittedByNM)

IS notification (3GPP TS 28.302 [2])	SS notification	Port	Support Qualifier

B.2.3 Operation parameter mapping

B.2.3.1 Operation `requestLcRegistration`

B.2.3.1.1 Input parameters

Table B.2.3.1.1.1: Mapping from IS `requestLcRegistration` input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
licenseeId	licenseeId	M
lCId	lCId	M
lRId	lRId	M

XML schema fragment of the `requestLcRegistration` request:

```
<element name="requestLcRegistrationRequest">
  <complexType>
    <sequence>
       <element name="licenseeId" type="integer"/>
       <element name="lCId"       type="integer"/>
       <element name="lRId"       type="integer"/>
    </sequence>
  </complexType>
</element>
```

B.2.3.1.2 Output parameters

Table B.2.3.1.2.1: Mapping from IS `requestLcRegistration` output parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
licenseeId	licenseeId	M
lCId	lCId	M
lRId	lRId	M
cause	cause	M
result	No direct mapping	--

XML schema fragment of the `requestLcRegistration` response:

```
<element name="requestLcRegistrationResponse">
  <complexType>
    <sequence>
       <element name="licenseeId" type="integer"/>
       <element name="lCId" type="integer"/>
       <element name="lRId" type="integer"/>
    </sequence>
  </complexType>
</element>
```

B.2.3.1.3 Fault definition

```
<element name="requestLcRegistrationFault">
  <complexType>
    <choice>
      <element name="cause" type="integer"/>
    </choice>
  </complexType>
</element>
```

B.2.3.2 Operation `requestLcDeRegistration`

B.2.3.2.1 Input parameters

Table B.2.3.2.1.1: Mapping from IS `requestLcDeRegistration` input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
lCId	lCId	M
lRId	lRId	M

XML schema fragment of the `requestLcDeRegistration` request:

```
<element name="requestLcDeRegistrationRequest">
  <complexType>
    <sequence>
       <element name="lCId" type="integer"/>
       <element name="lRId" type="integer"/>
    </sequence>
  </complexType>
</element>
```

B.2.3.2.2 Output parameters

Table B.2.3.2.2.2: Mapping from IS `requestLcDeRegistration` output parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
lCId	lCId	M
lRId	lRId	M
cause	cause	M
result	No direct mapping	--

XML schema fragment of the `requestLcDeRegistration` response:

```
<element name="requestLcDeRegistrationResponse">
  <complexType>
    <sequence>
       <element name="lCId"       type="integer"/>
       <element name="lRId"       type="integer"/>
    </sequence>
  </complexType>
</element>
```

B.2.3.2.3 Fault definition

```
<element name="requestLcDeRegistrationFault">
  <complexType>
    <choice>
      <element name="cause" type="integer"/>
    </choice>
  </complexType>
</element>
```

B.2.3.3 Operation `getLSRAI`

B.2.3.3.1 Input parameters

Table B.2.3.3.1.1: Mapping from IS `getLSRAI` input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
scope	scope	M

XML schema fragment of the `getLSRAI` request:

```
<element name="getLSRAIRequest">
```

```
    <complexType>
      <sequence>
         <element name="scope" type="zoneIdListType"/>
      </sequence>
    </complexType>
  </element>
```

B.2.3.3.2 Output parameters

Table B.2.3.3.2.1: Mapping from IS `getLSRAI` output parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
ISRAI	ISRAI	M
status	No direct mapping	--

XML schema fragment of the `getLSRAI` response:

```
<element name="getLSRAIResponse">
  <complexType>
    <sequence>
       <element name="lSRAI" type="lSRAIIocType"/>
    </sequence>
  </complexType>
</element>
```

B.2.3.3.3 Fault definition

```
<element name="getLSRAIFault">
  <complexType>
    <choice>
      <element name="cause" type="integer"/>
    </choice>
  </complexType>
</element>
```

B.2.3.4 Operation `getLSRAIConfirmation`

B.2.3.4.1 Input parameters

Table B.2.3.4.1.1: Mapping from IS `getLSRAIConfirmation` input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
status	No direct mapping	--

XML schema fragment of the `getLSRAIConfirmation` request:

```
<element name="getLSRAIConfirmationRequest">
  <complexType>
    <sequence>
    </sequence>
  </complexType>
</element>
```

B.2.3.4.2 Output parameters

Table B.2.3.4.2.1: Mapping from IS `getLSRAIConfirmation` output parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
confirmedZoneList	confirmedZoneList	M

XML schema fragment of the `getLSRAIConfirmation` response:

```
<element name="getLSRAIConfirmationResponse">
  <complexType>
```

```
    <sequence>
       <element name="confirmedZoneList" type="zoneIdListType"/>
    </sequence>
  </complexType>
</element>
```

B.2.3.4.3 Fault definition

```
<element name="getLSRAIConfirmationFault">
  <complexType>
    <choice>
      <element name="cause" type="integer"/>
    </choice>
  </complexType>
</element>
```

B.2.3.5 Operation `cellsUpdate`

B.2.3.5.1 Input parameters

Table B.2.3.5.1.1: Mapping from IS `cellsUpdate` input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
addedLSACells	addedLSACells	O
modifiedLSACells	modifiedLSACells	O
removedLSACells	removedLSACells	O

XML schema fragment of the `cellsUpdate` request:

```
<element name="cellsUpdate">
  <complexType>
    <sequence>
       <element name="addedLSACells" type="lSACellSType" minOccurs="0"/>
       <element name="modifiedCells" type="lSACellSType" minOccurs="0"/>
       <element name="removedCells" type="lSACellsType" minOccurs="0"/>
    </sequence>
  </complexType>
</element>
```

B.2.3.5.2 Output parameters

Table B.2.3.5.2.1: Mapping from IS `cellsUpdate` output parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
status	No direct mapping	--

XML schema fragment of the `cellsUpdate` response:

```
<element name="cellsUpdate">
  <complexType>
    <sequence>
    </sequence>
  </complexType>
</element>
```

B.2.3.5.3 Fault definition

```
<element name="cellsUpdate">
  <complexType>
    <choice>
      <element name="cause" type="integer"/>
    </choice>
  </complexType>
</element>
```

B.2.3.6 Operation cellsConstraintsSatisfied

B.2.3.6.1 Input parameters

Table B.2.3.6.1.1: Mapping from IS cellsConstraintsSatisfied input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
cellsConstraints	cellsConstraints	M

XML schema fragment of the cellsConstraintsSatisfied request:

```
<element name="cellsConstraintsSatisfied">
  <complexType>
    <sequence>
      <element name="cellsConstraints" type="cellsConstraintsType"/>
    </sequence>
  </complexType>
</element>
```

B.2.3.6.2 Output parameters

Table B.2.3.6.2.1: Mapping from IS cellsConstraintsSatisfied output parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
status	No direct mapping	--

XML schema fragment of the cellsConstrainsSatisfied response:

```
<element name="cellsConstraintsSatisfied">
  <complexType>
    <sequence>
    </sequence>
  </complexType>
</element>
```

B.2.3.6.3 Fault definition

```
<element name="cellsConstraintsSatisfied">
  <complexType>
    <choice>
      <element name="cause" type="integer"/>
    </choice>
  </complexType>
</element>
```

B.2.3.7 Operation cellsConstraintsUpdate

B.2.3.7.1 Input parameters

Table B.2.3.7.1.1: Mapping from IS cellsConstraintsUpdate input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
cellsConstraints	cellsConstraints	M

XML schema fragment of the cellsConstraintsUpdaterequest:

```
<element name="cellsConstraintsUpdate">
  <complexType>
    <sequence>
      <element name="cellsConstraints" type="cellsConstraintsType"/>
    </sequence>
  </complexType>
</element>
```

B.2.3.7.2 Output parameters

Table B.2.3.7.2.1: Mapping from IS `cellsConstraintsUpdate` output parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
status	No direct mapping	--

XML schema fragment of the `cellsConstrainsUpdate` response:

```
<element name="cellsConstraintsUpdate">
  <complexType>
    <sequence>
    </sequence>
  </complexType>
</element>
```

B.2.3.7.3 Fault definition

```
<element name="cellsConstraintsUpdate">
  <complexType>
    <choice>
      <element name="cause" type="integer"/>
    </choice>
  </complexType>
</element>
```

B.2.4 Notification parameter mapping

B.2.4.1 Notification `notifyLCRegistration`

B.2.4.1.1 Input parameters

Table B.2.4.1.1.1: Mapping from IS `notifyLCRegistration` input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
licenseeId	licenseeId	M
lCId	lCId	M
lRId	lRId	M

XML schema fragment of the `notifyLCRegistration` request:

```
<!-- notifyLCRegistration Request -->
<element name="notifyLCRegistration">
  <complexType>
    <sequence>
       <element name="licenseeId" type="integer"/>
       <element name="lCId" type="integer"/>
       <element name="lRId" type="integer"/>
    </sequence>
  </complexType>
</element>
```

B.2.4.2 Notification `notifyLCDeRegistration`

B.2.4.2.1 Input parameters

Table B.2.4.2.1.1: Mapping from IS `notifyLCDeRegistration` input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
licenseeId	licenseeId	M
lCId	lCId	M
lRId	lRId	M

XML schema fragment of the `notifyLCDeRegistration` request:

```
<!-- notifyLCDeRegistration Request -->
<element name="notifyLCDeRegistration">
  <complexType>
    <sequence>
       <element name="licenseeId" type="integer"/>
       <element name="lCId" type="integer"/>
       <element name="lRId" type="integer"/>
    </sequence>
  </complexType>
</element>
```

B.2.4.3 Notification `notifyZoneCreation`

B.2.4.3.1 Input parameters

Table B.2.4.3.1.1: Mapping from IS `notifyZoneCreation` input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
lSRAI	lSRAI	M

XML schema fragment of the `notifyZoneCreation` request:

```
<!-- notifyZoneCreation Request -->
<element name="notifyZoneCreation">
  <complexType>
    <sequence>
       <element name="lSRAI" type="lSRAIIocType"/>
    </sequence>
  </complexType>
</element>
```

B.2.4.4 Notification `notifyZoneDeletion`

B.2.4.4.1 Input parameters

Table B.2.4.4.1.1: Mapping from IS `notifyZoneDeletion` input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
lSRAI	lSRAI	M

XML schema fragment of the `notifyZoneDeletion` request:

```
<!-- notifyZoneDeletion Request -->
<element name="notifyZoneDeletion">
  <complexType>
    <sequence>
       <element name="lSRAI" type="lSRAIIocType"/>
    </sequence>
  </complexType>
</element>
```

B.2.4.5 Notification notifyZoneModification

B.2.4.5.1 Input parameters

Table B.2.4.5.1.1: Mapping from IS notifyZoneModification input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
lSRAI	lSRAI	M

XML schema fragment of the notifyZoneModification request:

```
<!-- notifyZoneModification Request -->
<element name="notifyZoneModification">
  <complexType>
    <sequence>
      <element name="lSRAI" type=" lSRAIIocType "/>
    </sequence>
  </complexType>
</element>
```

B.2.4.6 Notification notifyLSRAIConfirmation

B.2.4.6.1 Input parameters

Table B.2.4.6.1.1: Mapping from IS notifyLSRAIConfirmation input parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
confirmedZoneList	confirmedZoneList	M

XML schema fragment of the notifyLSRAIConfirmation request:

```
<!-- notifyLSRAIConfirmation Request -->
<element name="notifyLSRAIConfirmation">
  <complexType>
    <sequence>
       <element name="confirmedZoneList" type="zoneIdListType"/>
    </sequence>
  </complexType>
</element>
```

B.3 Solution Set definitions

B.3.1 WSDL definition structure

Clause B.3.2 provides a graphical representation of the Licensed Shared Access (LSA) Controller (LC) IRP service.

Clause B.3.3 defines the services which are supported by the Licensed Shared Access (LSA) Controller (LC) IRP agent in the LC and which are common for scenario 1 and scenario 2.

Clause B.3.4 defines the services which are supported by the Licensed Shared Access (LSA) Controller (LC) IRP agent in the LC for scenario 1.

Clause B.3.5 defines the services which are supported by the Licensed Shared Access (LSA) Controller (LC) IRP agent in the NM for scenario 1.

Clause B.3.6 defines the services which are supported by the Licensed Shared Access (LSA) Controller (LC) IRP agent in the LC for scenario 2.

Clause B.3.7 defines the services which are supported by the Licensed Shared Access (LSA) Controller (LC) IRP agent in the NM for scenario 2.

B.3.2 Graphical Representation

A graphical representation is not provided in the present document.

B.3.3 WSDL specification "LCIRPLCRSystem.wsdl"

```
<?xml version="1.0" encoding="UTF-8"?>

<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
             xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
             xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
             xmlns:xs="http://www.w3.org/2001/XMLSchema"
             xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"

             xmlns:LCIRPLCRSystem="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCRSystem"
             xmlns:LCIRPLCRData="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCRData"

             targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/28.303#LCIRPLCRSystem">

  <!-------------------------------------------------------------------------------------------->
  <!— Type definitions                                                                        -->
  <!-------------------------------------------------------------------------------------------->

  <types>
    <schema targetNamespace="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCRData"
            xmlns="http://www.w3.org/2001/XMLSchema">

      <element name="requestLcRegistrationRequest">
        <complexType>
          <sequence>
             <element name="licenseeId" type="integer"/>
             <element name="lCId"       type="integer"/>
             <element name="lRId"       type="integer"/>
          </sequence>
        </complexType>
      </element>
     <element name="requestLcRegistrationResponse">
        <complexType>
          <sequence>
             <element name="lCId" type="integer"/>
             <element name="lRId" type="integer"/>
          </sequence>
        </complexType>
      </element>
      <element name="requestLcRegistrationFault">
        <complexType>
          <choice>
            <element name="cause" type="integer"/>
          </choice>
        </complexType>
      </element>

      <element name="requestLcDeRegistrationRequest">
        <complexType>
          <sequence>
             <element name="lCId" type="integer"/>
             <element name="lRId" type="integer"/>
          </sequence>
        </complexType>
      </element>
      <element name="requestLcDeRegistrationResponse">
        <complexType>
          <sequence>
             <element name="lCId" type="integer"/>
             <element name="lRId" type="integer"/>
          </sequence>
        </complexType>
      </element>
      <element name="requestLcDeRegistrationFault">
        <complexType>
          <choice>
            <element name="cause" type="integer"/>
          </choice>
        </complexType>
      </element>

      <element name="notifyLCRegistration">
        <complexType>
          <sequence>
             <element name="licenseeId" type="integer"/>
```

```
            <element name="lCId" type="integer"/>
            <element name="lRId" type="integer"/>
          </sequence>
        </complexType>
      </element>

      <element name="notifyLCDeRegistration">
        <complexType>
          <sequence>
            <element name="licenseeId" type="integer"/>
            <element name="lCId" type="integer"/>
            <element name="lRId" type="integer"/>
          </sequence>
        </complexType>
      </element>

    </schema>
  </types>


  <!---------------------------------------------------------------------------------------------->
  <!— Message definitions                                                                       -->
  <!---------------------------------------------------------------------------------------------->

  <message name="requestLcRegistrationRequest">
    <part name="parameter" element="LCIRPLCRData:requestLcRegistrationRequest"/>
  </message>
  <message name="requestLcRegistrationResponse">
    <part name="parameter" element="LCIRPLCRData:requestLcRegistrationResponse"/>
  </message>
  <message name="requestLcRegistrationFault">
    <part name="parameter" element="LCIRPLCRData:requestLcRegistrationFault"/>
  </message>

  <message name="requestLcDeRegistrationRequest">
    <part name="parameter" element="LCIRPLCRData:requestLcDeRegistrationRequest"/>
  </message>
  <message name="requestLcDeRegistrationResponse">
    <part name="parameter" element="LCIRPLCRData:requestLcDeRegistrationResponse"/>
  </message>
  <message name="requestLcDeRegistrationFault">
    <part name="parameter" element="LCIRPLCRData:requestLcDeRegistrationFault"/>
  </message>

  <message name="notifyLCRegistrationRequest">
    <part name="parameter" element="LCIRPLCRData:notifyLCRegistration"/>
  </message>

  <message name="notifyLCDeRegistrationRequest">
    <part name="parameter" element="LCIRPLCRData:notifyLCDeRegistration"/>
  </message>

  <!---------------------------------------------------------------------------------------------->
  <!— Port type definitions                                                                     -->
  <!---------------------------------------------------------------------------------------------->

  <portType name="LCIRPLCRRPortType">

    <operation name="requestLcRegistration">
      <input message="LCIRPLCRSystem:requestLcRegistrationRequest"/>
      <output message="LCIRPLCRSystem:requestLcRegistrationResponse"/>
      <fault name="requestLcRegistrationFault" message="LCIRPLCRSystem:requestLcRegistrationFault"/>
    </operation>

    <operation name="requestLcDeRegistration">
      <input message="LCIRPLCRSystem:requestLcDeRegistrationRequest"/>
      <output message="LCIRPLCRSystem:requestLcDeRegistrationResponse"/>
      <fault name="requestLcDeRegistrationFault" message="LCIRPLCRSystem:requestLcDeRegistrationFault"/>
    </operation>

    <operation name="notifyLCRegistration">
      <input message="LCIRPLCRSystem:notifyLCRegistrationRequest"/>
    </operation>

    <operation name="notifyLCRDeRegistration">
      <input message="LCIRPLCRSystem:notifyLCDeRegistrationRequest"/>
    </operation>
  </portType>

  <!---------------------------------------------------------------------------------------------->
  <!— Bindings                                                                                  -->
  <!---------------------------------------------------------------------------------------------->

  <binding name="LCIRPLCRBinding" type="LCIRPLCRSystem:LCIRPLCRPortType">
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>

      <operation name="requestLcRegistration">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#requestLcRegistration"/>
        <input>
          <soap:body use="literal"/>
```

```
        </input>
        <output>
          <soap:body use="literal"/>
        </output>
        <fault name="requestLcRegistrationFault">
          <soap:fault name="requestLcRegistrationFault" use="literal"/>
        </fault>
      </operation>

      <operation name="requestLcDeRegistration">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#requestLcDeRegistration"/>
        <input>
          <soap:body use="literal"/>
        </input>
        <output>
          <soap:body use="literal"/>
        </output>
        <fault name="requestLcDeRegistrationFault">
          <soap:fault name="requestLcDeRegistrationFault" use="literal"/>
        </fault>
      </operation>

      <operation name="notifyLCRegistration">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#notifyLCRegistration"/>
        <input>
          <soap:body use="literal"/>
        </input>
      </operation>

      <operation name="notifyLCDeregistration">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#notifyLCDeRegistration"/>
        <input>
          <soap:body use="literal"/>
        </input>
      </operation>

  </binding>
```

B.3.4 WSDL specification "LCIRPLCSystem.wsdl" (scenario 1)

```
<?xml version="1.0" encoding="UTF-8"?>

<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
             xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
             xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
             xmlns:xs="http://www.w3.org/2001/XMLSchema"
             xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"

             xmlns:LCIRPLCSystem="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCSystem"
             xmlns:LCIRPLCData="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCData"

             xmlns:LCIRPLCRSystem="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCRSystem"

             targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/28.303#LCIRPLCSystem">

  <!-------------------------------------------------------------------------------------------->
  <!— Type definitions                                                                        -->
  <!-------------------------------------------------------------------------------------------->

  <types>
    <schema targetNamespace="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCData"
            xmlns="http://www.w3.org/2001/XMLSchema">

      <complexType name="zoneIdListType">
        <sequence minOccurs="0" maxOccurs="unbounded">
          <element name="zoneId" type="integer"/>
        </sequence>
      </complexType>

      <complexType name = "zoneIocType">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <sequence>
                <element name="zoneId" type="integer"/>
                <element name="zoneType" type="integer"/>
                <element name="frequency" type="integer"/>
                <element name="radioconstraints" type="anyType"/>
                <element name="space" type="anyType"/>
                <element name="time" type="anyType"/>
              </sequence>
            </complexType>
          </element>
        </sequence>
      </complexType>

      <complexType name="lSRAIIocType">
        <sequence minOccurs="0" maxOccurs="unbounded">
```

```
        <element name="zone" type="LCIRPLCData:zoneIocType"/>
      </sequence>
    </complexType>

    <element name="getLSRAIRequest">
      <complexType>
        <sequence>
           <element name="scope" type="LCIRPLCData:zoneIdListType"/>
        </sequence>
      </complexType>
    </element>
    <element name="getLSRAIResponse">
      <complexType>
        <sequence>
           <element name="lSRAI" type="LCIRPLCData:lSRAIIocType"/>
        </sequence>
      </complexType>
    </element>
    <element name="getLSRAIFault">
      <complexType>
        <choice>
          <element name="cause" type="integer"/>
        </choice>
      </complexType>
    </element>

    <element name="notifyZoneCreation">
      <complexType>
        <sequence>
          <element name="lSRAI" type="LCIRPLCData:lSRAIIocType "/>
        </sequence>
      </complexType>
    </element>

    <element name="notifyZoneDeletion">
      <complexType>
        <sequence>
          <element name="lSRAI" type="LCIRPLCData:lSRAIIocType "/>
        </sequence>
      </complexType>
    </element>

    <element name="notifyZoneModification">
      <complexType>
        <sequence>
          <element name="lSRAI" type="LCIRPLCData :lSRAIIocType "/>
        </sequence>
      </complexType>
    </element>

  </schema>
</types>


<!-------------------------------------------------------------------------------------------->
<!— Message definitions                                                                      -->
<!-------------------------------------------------------------------------------------------->

<message name="getLSRAIRequest">
  <part name="parameter" element="LCRPLCData:getLSRAIRequest"/>
</message>
<message name="getLSRAIResponse">
  <part name="parameter" element="LCIRPLCData:getLSRAIResponse"/>
</message>
<message name="getLSRAIFault">
  <part name="parameter" element="getLSRAIFault"/>
</message>

<message name="notifyZoneCreationRequest">
  <part name="parameter" element="LCRPLCData:notifyCreation"/>
</message>

<message name="notifyZoneDeletionRequest">
  <part name="parameter" element="LCRPLCData:notifyDeletion"/>
</message>

<message name="notifyZoneModificationRequest">
  <part name="parameter" element="LCRPLCData:notifyZoneModification"/>
</message>

<!-------------------------------------------------------------------------------------------->
<!— Port type definitions                                                                    -->
<!-------------------------------------------------------------------------------------------->

<portType name="LCIRPLCPortType">
  <operation name="getLSRAI">
    <input message="LCIRPLCSystem:getLSRAIRequest"/>
    <output message="LCIRPLCSystem:getLSRAIResponse"/>
    <fault name="getLSRAIFault" message="LCIRPLCSystem:getLSRAIFault"/>
  </operation>
```

```
    <operation name="notifyZoneCreation">
      <input message="LCIRPLCSystem:notifyZoneCreationRequest"/>
    </operation>

    <operation name="notifyZoneDeletion">
      <input message="LCIRPLCSystem:notifyZoneDeletionRequest"/>
    </operation>

    <operation name="notifyZoneModification">
      <input message="LCIRPLCSystem:notifyZoneModificationRequest"/>
    </operation>

  </portType>

  <!-------------------------------------------------------------------------------------------->
  <!— Bindings                                                                                 -->
  <!-------------------------------------------------------------------------------------------->

  <binding name="LCIRPLCBinding" type="LCIRPLCSystem:LCIRPLCPortType">
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
      <operation name="getLSRAI">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#getLSRAI"/>
        <input>
          <soap:body use="literal"/>
        </input>
        <output>
          <soap:body use="literal"/>
        </output>
        <fault name="getLSRAIFault">
          <soap:fault name="getLSRAIFault" use="literal"/>
        </fault>
      </operation>

      <operation name="notifyZoneCreation">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#notifyZoneCreation"/>
        <input>
          <soap:body use="literal"/>
        </input>
      </operation>

      <operation name="notifyZoneDeletion">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#notifyZoneDeletion"/>
        <input>
          <soap:body use="literal"/>
        </input>
      </operation>

      <operation name="notifyZoneModification">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#notifyZoneModification"/>
        <input>
          <soap:body use="literal"/>
        </input>
      </operation>

  </binding>

  <!-------------------------------------------------------------------------------->
  <!-- LC IRP service definitions (IRP Agent in LC, scenario 1                  -->
  <!-------------------------------------------------------------------------------->

  <service name="LCIRPLCService">

    <port name="LCIRPLCRPort" binding="LCIRPLCRSystem:LCIRPLCRBinding">
      <soap:address location="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRP"/>
    </port>

    <port name="LCIRPLCPort" binding="LCIRPLCSystem:LCIRPLCBinding">
      <soap:address location="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRP"/>
    </port>

  </service>

</definitions>
```

B.3.5 WSDL specification "LCIRPNMSystem.wsdl" (scenario 1)

```
<?xml version="1.0" encoding="UTF-8"?>

<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
             xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
             xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
             xmlns:xs="http://www.w3.org/2001/XMLSchema"
             xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"

             xmlns:LCIRPNMSystem="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRNMPSystem"
             xmlns:LCIRPLNMData="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPNMData"
```

```
           targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/28.303#LCIRPLCSystem">

<!-------------------------------------------------------------------------------------------->
<!— Type definitions                                                                          -->
<!-------------------------------------------------------------------------------------------->

<types>
  <schema targetNamespace="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPNMData"
          xmlns="http://www.w3.org/2001/XMLSchema">

    <complexType name="zoneIdListType">
      <sequence minOccurs="0" maxOccurs="unbounded">
        <element name="zoneId" type="integer"/>
      </sequence>
    </complexType>

    <element name="getLSRAIConfirmationRequest">
      <complexType>
        <sequence>
        </sequence>
      </complexType>
    </element>
    <element name="getLSRAIConfirmationResponse">
      <complexType>
        <sequence>
           <element name="confirmedZoneList" type="LCIRPNNMData:zoneIdListType"/>
        </sequence>
      </complexType>
    </element>
    <element name="getLSRAIConfirmationFault">
      <complexType>
        <choice>
          <element name="cause" type="integer"/>
        </choice>
      </complexType>
    </element>

    <element name="notifyLSRAIConfirmation">
      <complexType>
        <sequence>
           <element name="confirmedZoneList" type="LCIRPNNMData:zoneIdListType"/>
        </sequence>
      </complexType>

  </schema>
</types>



<!-------------------------------------------------------------------------------------------->
<!— Message definitions                                                                       -->
<!-------------------------------------------------------------------------------------------->

<message name="getLSRAIConfirmationRequest">
  <part name="parameter" element="LCRPNMData:getLSRAIConfirmationRequest"/>
</message>
<message name="getLSRAIConfirmationResponse">
  <part name="parameter" element="LCIRPNMData:getLSRAIConfirmationResponse"/>
</message>
<message name="getLSRAIConfirmationFault">
  <part name="parameter" element="LCIRPNMData:getLSRAIConfirmationFault"/>
</message>

<message name="notifyLSRAIConfirmationRequset">
  <part name="parameter" element="LCRPNMData:notifyZoneConfirmation"/>
</message>

<!-------------------------------------------------------------------------------------------->
<!— Port type definitions                                                                     -->
<!-------------------------------------------------------------------------------------------->

<portType name="LCIRPNMPortType">

  <operation name="getLSRAIConfirmation">
    <input message="LCIRPNMSystem:getLSRAIConfirmationRequest"/>
    <output message="LCIRPNMSystem:getLSRAIConfirmationResponse"/>
    <fault name="getLSRAIConfirmationFault" message="LCIRPNMSystem:getLSRAIConfirmationFault"/>
  </operation>

  <operation name="notifyLSRAIConfirmation">
    <input message="LCIRPNMSystem:notifyLSRAIConfirmationRequest"/>
  </operation>

</portType>

<!-------------------------------------------------------------------------------------------->
<!— Bindings                                                                                  -->
<!-------------------------------------------------------------------------------------------->

<binding name="LCIRPNMBinding" type="LCIRPNMSystem:LCIRPNMPortType">
```

```
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>

      <operation name="getLSRAIConfirmation">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#getLSRAIConfirmation"/>
        <input>
          <soap:body use="literal"/>
        </input>
        <output>
          <soap:body use="literal"/>
        </output>
        <fault name="getLSRAIConfirmationFault">
          <soap:fault name="getLSRAIConfirmationFault" use="literal"/>
        </fault>
      </operation>

      <operation name="notifyLSRAIConfirmation">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#notifyZoneConfirmation"/>
        <input>
          <soap:body use="literal"/>
        </input>
      </operation>

  </binding>

  <!------------------------------------------------------------------------------------>
  <!-- LC IRP service definitions (IRP Agent in NM, scenario 1                      -->
  <!------------------------------------------------------------------------------------>

  <service name="LCIRPNMService">

    <port name="LCIRPNMPort" binding="LCIRPNMSystem:LCIRPNMBinding">
      <soap:address location="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRP"/>
    </port>

  </service>

</definitions>
```

B.3.6 WSDL specification "LCIRPLCSystem.wsdl" (scenario 2)

```
<?xml version="1.0" encoding="UTF-8"?>

<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
             xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
             xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
             xmlns:xs="http://www.w3.org/2001/XMLSchema"
             xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"

             xmlns:LCIRPLCSystem="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCSystem"
             xmlns:LCIRPLCData="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCData"

             xmlns:LCIRPLCRSystem="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCRSystem"

             targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/28.303#LCIRPLCSystem">

  <!------------------------------------------------------------------------------------------------>
  <!— Type definitions                                                                            -->
  <!------------------------------------------------------------------------------------------------>

  <types>
    <schema targetNamespace="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPLCData"
            xmlns="http://www.w3.org/2001/XMLSchema">

      <complexType name = "lSACellType">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <sequence>
                <element name="cellId" type="string"/>
                <element name="geographicalArea" type="anyType"/>
                <element name="maxAllowedEIRP" type="integer"/>
                <element name="minAllowedEIRP" type="integer"/>
                <element name="maxAllowedAntennaAltitude" type="integer"/>
                <element name="minAllowedAntennaAltitude" type="integer"/>
                <element name="maxAllowedAntennaTilt" type="integer"/>
                <element name="minAllowedAntennaTilt" type="integer"/>
                <element name="antennaPatternLabel" type="string"/>
                <element name="antennaType" type="string"/>
              </sequence>
            </complexType>
          </element>
        </sequence>
      </complexType>

      <complexType name="lSACellsType">
        <sequence minOccurs="0" maxOccurs="unbounded">
          <element name="lSACell" type="lSACellType"/>
```

```
      </sequence>
    </complexType>

    <complexType name = "cellConstraintsType">
      <sequence>
        <element name="attributes" minOccurs="0">
          <complexType>
            <sequence>
              <element name="cellId" type="string"/>
              <element name="maxAllowedEIRP" type="integer"/>
              <element name="maxLeadTime" type="integer"/>
            </sequence>
          </complexType>
        </element>
      </sequence>
    </complexType>

    <complexType name="cellsConstraintsType">
      <sequence minOccurs="0" maxOccurs="unbounded">
        <element name="cellConstraints" type="cellConstraintsType"/>
      </sequence>
    </complexType>

    <element name="cellsUpdateRequest">
      <complexType>
        <sequence>
           <element name="addedLSACells" type="lSACellSType" minOccurs="0"/>
           <element name="modifiedCells" type="lSACellSType" minOccurs="0"/>
           <element name="removedCells" type="lSACellsType" minOccurs="0"/>
        </sequence>
      </complexType>
    </element>
    <element name="cellsUpdateResponse">
      <complexType>
        <sequence>
        </sequence>
      </complexType>
    </element>
    <element name="cellsUpdateFault">
      <complexType>
        <choice>
          <element name="cause" type="integer"/>
        </choice>
      </complexType>
    </element>

    <element name="cellsConstraintsSatisfiedRequest">
          <element name="cellsConstraints" type="cellsConstraintsType"/>
        <sequence>
        </sequence>
      </complexType>
    </element>
    <element name="cellsConstraintsSatisfiedResponse">
      <complexType>
        <sequence>
        </sequence>
      </complexType>
    </element>
    <element name="cellsConstraintsSatisfiedFault">
      <complexType>
        <choice>
          <element name="cause" type="integer"/>
        </choice>
      </complexType>
    </element>

  </schema>
</types>

<!-------------------------------------------------------------------------------------------->
<!— Message definitions                                                                      -->
<!-------------------------------------------------------------------------------------------->

<message name="cellsUpdateRequest">
  <part name="parameter" element="LCRPLCData:cellsUpdateRequest"/>
</message>
<message name="cellsUpdateResponse">
  <part name="parameter" element="LCIRPLCData:cellsUpdateResponse"/>
</message>
<message name="cellsUpdateFault">
  <part name="parameter" element="cellsUpdateFault"/>
</message>

<message name="cellsConstraintsSatisfiedRequest">
  <part name="parameter" element="LCRPLCData:cellsConstraintsSatisfiedRequest"/>
</message>
<message name="cellsConstraintsSatisfiedResponse">
  <part name="parameter" element="LCIRPLCData:cellsConstraintsSatisfiedResponse"/>
</message>
<message name="cellsConstraintsSatisfiedFault">
```

```
    <part name="parameter" element="cellsConstraintsSatisfiedFault"/>
  </message>

  <!-------------------------------------------------------------------------------------------------->
  <!— Port type definitions                                                                          -->
  <!-------------------------------------------------------------------------------------------------->

  <portType name="LCIRPLCPortType">

    <operation name="cellsUpdate">
      <input message="LCIRPLCSystem:cellsUpdateRequest"/>
      <output message="LCIRPLCSystem:cellsUpdateResponse"/>
      <fault name="cellsUpdateFault" message="LCIRPLCSystem:cellsUpdateFault"/>
    </operation>

    <operation name="cellsConstraintsSatisfied">
      <input message="LCIRPLCSystem:cellsConstraintsSatisfiedRequest"/>
      <output message="LCIRPLCSystem:cellsConstraintsSatisfiedResponse"/>
      <fault name="cellsConstraintsSatisfiedFault" message="LCIRPLCSystem:cellsConstraintsSatisfiedFault"/>
    </operation>

  </portType>

  <!-------------------------------------------------------------------------------------------------->
  <!— Bindings                                                                                       -->
  <!-------------------------------------------------------------------------------------------------->

  <binding name="LCIRPLCBinding" type="LCIRPLCSystem:LCIRPLCPortType">
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>

      <operation name="cellsUpdate">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#cellsUpdate"/>
        <input>
          <soap:body use="literal"/>
        </input>
        <output>
          <soap:body use="literal"/>
        </output>
        <fault name="cellsUpdateFault">
          <soap:fault name="cellsUpdateFault" use="literal"/>
        </fault>
      </operation>

      <operation name="cellsConstraintsSatisfied">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303# cellsConstraintsSatisfied "/>
        <input>
          <soap:body use="literal"/>
        </input>
        <output>
          <soap:body use="literal"/>
        </output>
        <fault name="cellsConstraintsSatisfiedFault">
          <soap:fault name="cellsConstraintsSatisfiedFault" use="literal"/>
        </fault>
      </operation>

  </binding>

  <!-------------------------------------------------------------------------------->
  <!-- LC IRP service definitions (IRP Agent in LC, scenario 2                  -->
  <!-------------------------------------------------------------------------------->

  <service name="LCIRPLCService">

    <port name="LCIRPLCRPort" binding="LCIRPLCRSystem:LCIRPLCRBinding">
      <soap:address location="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRP"/>
    </port>

    <port name="LCIRPLCPort" binding="LCIRPLCSystem:LCIRPLCBinding">
      <soap:address location="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRP"/>
    </port>

  </service>

</definitions>
```

B.3.7 WSDL specification "LCIRPNMSystem.wsdl" (scenario 2)

```
<?xml version="1.0" encoding="UTF-8"?>

<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
             xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
             xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
             xmlns:xs="http://www.w3.org/2001/XMLSchema"
             xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"

             xmlns:LCIRPNMSystem="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRNMPSystem"
```

```
           xmlns:LCIRPLNMData="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPNMData"

           targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/28.303#LCIRPLCSystem">

<!-------------------------------------------------------------------------------------------->
<!— Type definitions                                                                          -->
<!-------------------------------------------------------------------------------------------->

<types>
  <schema targetNamespace="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRPNMData"
          xmlns="http://www.w3.org/2001/XMLSchema">

    <complexType name = "cellConstraintsType">
      <sequence>
        <element name="attributes" minOccurs="0">
          <complexType>
            <sequence>
              <element name="cellId" type="string"/>
              <element name="maxAllowedEIRP" type="integer"/>
              <element name="maxLeadTime" type="integer"/>
            </sequence>
          </complexType>
        </element>
      </sequence>
    </complexType>

    <complexType name="cellsConstraintsType">
      <sequence minOccurs="0" maxOccurs="unbounded">
        <element name="cellConstraints" type="cellConstraintsType"/>
      </sequence>
    </complexType>

    <element name="cellsConstraintsUpdateRequest">
      <complexType>
        <sequence>
          <element name="cellsConstraints" type="cellsConstraintsType"/>
        </sequence>
      </complexType>
    </element>
    <element name="cellsConstraintsUpdateResponse">
      <complexType>
        <sequence>
        </sequence>
      </complexType>
    </element>
    <element name="cellsConstraintsUpdateFault">
      <complexType>
        <choice>
          <element name="cause" type="integer"/>
        </choice>
      </complexType>
    </element>

  </schema>
</types>

<!-------------------------------------------------------------------------------------------->
<!— Message definitions                                                                       -->
<!-------------------------------------------------------------------------------------------->

<message name="cellsConstraintsUpdateRequest">
  <part name="parameter" element="LCRPNMData:cellsConstraintsUpdateRequest"/>
</message>
<message name="cellsConstraintsUpdateResponse">
  <part name="parameter" element="LCIRPNMData:cellsConstraintsUpdateResponse"/>
</message>
<message name="cellsConstraintsUpdateFault">
  <part name="parameter" element="LCIRPNMData:cellsConstraintsUpdateFault"/>
</message>

<!-------------------------------------------------------------------------------------------->
<!— Port type definitions                                                                     -->
<!-------------------------------------------------------------------------------------------->

<portType name="LCIRPNMPortType">

  <operation name="cellsConstraintsUpdate">
    <input message="LCIRPNMSystem:cellsConstraintsUpdateRequest"/>
    <output message="LCIRPNMSystem:cellsConstraintsUpdateResponse"/>
    <fault name="getLSRAIConfirmationFault" message="LCIRPNMSystem:cellsConstraintsUpdateFault"/>
  </operation>

</portType>

<!-------------------------------------------------------------------------------------------->
<!— Bindings                                                                                  -->
<!-------------------------------------------------------------------------------------------->

<binding name="LCIRPNMBinding" type="LCIRPNMSystem:LCIRPNMPortType">
  <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
```

```
      <operation name="getLSRAIConfirmation">
        <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#cellsConstraintsUpdate"/>
        <input>
          <soap:body use="literal"/>
        </input>
        <output>
          <soap:body use="literal"/>
        </output>
        <fault name="cellsConstraintsUpdateFault">
          <soap:fault name="cellsConstraintsUpdateFault" use="literal"/>
        </fault>
      </operation>

  </binding>

  <!-------------------------------------------------------------------------------->
  <!-- LC IRP service definitions (IRP Agent in NM, scenario 2                    -->
  <!-------------------------------------------------------------------------------->

  <service name="LCIRPNMService">

    <port name="LCIRPNMPort" binding="LCIRPNMSystem:LCIRPNMBinding">
      <soap:address location="http://www.3gpp.org/ftp/specs/archive/28_series/28.303#LCIRP"/>
    </port>

  </service>

</definitions>
```

Annex C (informative): Change history

Change history							
Date	**Meeting**	**TDoc**	**CR**	**Rev**	**Cat**	**Subject/Comment**	**New version**
2017-06	SA#76	SP-170471				Presented for information and approval	1.0.0
2017-06	SA#76					Upgrade to change control version	14.0.0
2018-06	-	-	-	-	-	Update to Rel-15 version (MCC)	**15.0.0**
2020-07	-	-	-	-	-	Update to Rel-16 version (MCC)	**16.0.0**
2022-03	-	-	-	-	-	Update to Rel-17 version (MCC)	**17.0.0**

History

Document history		
V17.0.0	April 2022	Publication