

# ETSI TS 129 153 V14.2.0 (2017-07)



**Universal Mobile Telecommunications System (UMTS);  
LTE;  
Service capability exposure functionality over  
Ns reference point  
(3GPP TS 29.153 version 14.2.0 Release 14)**



---

Reference

RTS/TSGC-0329153ve20

---

Keywords

LTE,UMTS

**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 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

---

**Copyright Notification**

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2017.

All rights reserved.

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 protected for the benefit of its Members.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

---

## Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is 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 IPR Policy, no investigation, 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.

---

## Foreword

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, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 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

Intellectual Property Rights .....	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	4
1 Scope .....	5
2 References .....	5
3 Definitions and abbreviations.....	6
3.1 Definitions .....	6
3.2 Abbreviations .....	6
4 Architectural Overview .....	6
4.0 Overview .....	6
4.1 Reference Model .....	6
4.2 Functional elements.....	7
4.2.1 RCAF.....	7
4.2.2 SCEF.....	7
4.3 Procedures over the Ns reference point .....	7
4.3.1 Network status reporting procedures .....	7
4.3.1.1 General .....	7
4.3.1.2 Request of one-time or continuous reporting of network status.....	7
4.3.1.3 Continuous reporting of network status .....	8
4.3.1.4 Cancellation of continuous reporting of network status.....	8
4.3.2 RCAF selection.....	9
5 Ns protocol .....	9
5.1 Protocol support .....	9
5.2 Initialization, maintenance and termination of connection and session.....	9
5.3 Ns specific AVPs .....	10
5.3.1 General.....	10
5.3.2 Network-Congestion-Area-Report AVP.....	10
5.3.3 Ns-Request-Type AVP .....	10
5.4 Ns re-used AVPs .....	10
5.4.1 General.....	10
5.4.2 Use of the Supported-Features AVP on the Ns reference point.....	11
5.5 Ns specific Experimental-Result-Code AVP values .....	12
5.5.1 General.....	12
5.5.2 Success.....	12
5.5.3 Permanent Failures .....	12
5.5.4 Transient Failures .....	12
5.6 Ns messages .....	12
5.6.1 Command-Code Values .....	12
5.6.2 Network-Status-Request (NSR) command .....	13
5.6.3 Network-Status-Answer (NSA) command .....	13
5.6.4 Network-Status-Continuous-Report-Request (NCR) command.....	14
5.6.5 Network-Status-Continuous-Report-Answer (NCA) command .....	14
<b>Annex A (informative): Call Flows over Ns .....</b>	<b>15</b>
A.1 Request of one time or continuous reporting of network status .....	15
A.2 Continuous reporting of network status .....	15
A.3 Cancellation of continuous reporting of network status.....	16
<b>Annex B (informative): Change history .....</b>	<b>17</b>
History .....	18

---

# Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> 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.

---

# 1 Scope

This document defines the protocol for Ns reference point between the Service Capability Exposure Function (SCEF) and RAN Congestion Awareness Function (RCAF).

The Ns reference point and related stage 2 procedures are defined in 3GPP TS 23.682 [2].

---

# 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 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications".
  - [3] IETF RFC 3588: "Diameter Base Protocol".
  - [4] 3GPP TS 29.217: "Congestion reporting over Np reference point".
  - [5] IETF RFC 7683: "Diameter Overload Indication Conveyance".
  - [6] 3GPP TS 29.229: "Cx and Dx interfaces based on Diameter protocol; Protocol details".
  - [7] 3GPP TS 29.336: "Home Subscriber Server (HSS) diameter interfaces for interworking with packet data networks and applications Diameter Base Protocol".
  - [8] 3GPP TS 29.154: "Service Capability Exposure Functionality over Nt reference point".
  - [9] 3GPP TS 29.274: "3GPP Evolved Packet System. Evolved GPRS Tunnelling Protocol for EPS (GTPv2)".
  - [10] IETF RFC 5719: "Updated IANA Considerations for Diameter Command Code Allocations".
  - [11] IETF RFC 2234: "Augmented BNF for syntax specifications".
  - [12] 3GPP TS 29.213: "Policy and charging control signalling flows and Quality of Service (QoS) parameter mapping".
  - [13] IETF RFC 7944: "Diameter Routing Message Priority".
  - [14] IETF draft-ietf-dime-load-09: "Diameter Load Information Conveyance".
- Editor's note:** The above document cannot be formally referenced until it is published as an RFC.
- [15] IETF RFC 6733: "Diameter Base Protocol".