



---

Reference

RTS/INT-00128-1

---

Keywords

conformance, diameter, PICS, protocol

**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.

© European Telecommunications Standards Institute 2016.

All rights reserved.

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

# Contents

Intellectual Property Rights .....	4
Foreword.....	4
Modal verbs terminology.....	4
Introduction .....	4
1 Scope .....	5
2 References .....	5
2.1 Normative references .....	5
2.2 Informative references.....	6
3 Definitions and abbreviations.....	6
3.1 Definitions.....	6
3.2 Abbreviations .....	6
4 Conformance .....	6
<b>Annex A (normative): PICS pro forma.....</b>	<b>7</b>
A.1 Guidance for completing the ICS pro forma .....	7
A.1.1 Purposes and structure.....	7
A.1.2 Abbreviations and conventions .....	7
A.1.3 Instructions for completing the PICS pro forma.....	8
A.2 Identification of the Network Equipment.....	9
A.2.1 Date of the statement.....	9
A.2.2 Network Equipment Under Test identification.....	9
A.2.3 Product supplier.....	9
A.2.4 Client .....	10
A.2.5 PICS contact person .....	10
A.3 Identification of the protocol.....	11
A.4 Global statement of conformance.....	11
A.5 PICS pro forma tables for the Cx interface .....	11
A.5.1 Roles.....	11
A.5.2 PICS Items for HSS.....	12
A.5.2.1 System Capabilities for HSS.....	12
A.5.3 PICS Items for I-CSCF.....	13
A.5.3.1 System Capabilities for I-CSCF.....	13
A.5.4 PICS Items for S-CSCF.....	14
A.5.4.1 System Capabilities for S-CSCF.....	14
A.5.4.2 S-CSCF Capabilities .....	15
A.6 PICS pro forma tables for the Dx interface .....	15
A.6.1 Roles.....	15
History .....	16

---

## 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 Technical Committee Core Network and Interoperability Testing (INT).

The present document is part 1 of a multi-part deliverable covering the test specifications for the Diameter protocol on the Cx and Dx interfaces, as identified below:

- Part 1: "**Protocol Implementation Conformance Statement (PICS)**";
- Part 2: "Test Suite Structure (TSS) and Test Purposes (TP)";
- Part 3: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) pro forma specification".

---

## 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.

---

## Introduction

To evaluate protocol conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a telecommunication specification. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

---

# 1 Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) pro forma for the test specifications for the Diameter protocol on the Cx and Dx interfaces as specified in ETSI TS 129 228 [1] and ETSI TS 129 229 [2] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [5] and ETSI ETS 300 406 [6].

The supplier of a protocol implementation which is claimed to conform to ETSI TS 129 228 [1] and ETSI TS 129 229 [2] is required to complete a copy of the PICS pro forma provided in annex A of the present document and is required to provide the information necessary to identify both the supplier and the implementation.

---

## 2 References

### 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference/>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

- [1] ETSI TS 129 228 (V10.8.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents (3GPP TS 29.228 version 10.8.0 Release 10)".
- [2] ETSI TS 129 229 (V10.5.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Cx and Dx interfaces based on the Diameter protocol; Protocol details (3GPP TS 29.229 version 10.5.0 Release 10)".
- [3] ETSI TS 123 380 (V10.3.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; IMS Restoration Procedures (3GPP TS 23.380 version 10.3.0 Release 10)".
- [4] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [5] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [6] ETSI ETS 300 406: "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [7] ETSI TR 121 905 (V10.3.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Vocabulary for 3GPP Specifications (3GPP TR 21.905 version 10.3.0 Release 10)".

## 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

---

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TS 129 228 [1], ETSI TS 129 229 [2] and the following apply:

**PICS pro forma:** document, in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which, when completed for an OSI implementation or system, becomes the PICS

NOTE: See ISO/IEC 9646-1 [4].

**Protocol Implementation Conformance Statement (PICS):** statement made by the supplier of an Open Systems Interconnection (OSI) implementation or system, stating which capabilities have been implemented for a given OSI protocol

NOTE: See ISO/IEC 9646-1 [4].

**static conformance review:** review of the extent to which the static conformance requirements are met by the IUT, accomplished by comparing the PICS with the static conformance requirements expressed in the relevant standard(s)

NOTE: See ISO/IEC 9646-1 [4].

### 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 129 228 [1], ETSI TS 129 229 [2] and ETSI TR 121 905 [7] apply.

---

## 4 Conformance

A PICS pro forma which conforms to this PICS pro forma specification shall be technically equivalent to annex A, and shall preserve the numbering and ordering of the items in annex A.

A PICS which conforms to this PICS pro forma specification shall:

- a) describe an implementation which claims to conform to ETSI TS 129 228 [1] and ETSI TS 129 229 [2];
- b) be a conforming ICS pro forma which has been completed in accordance with the instructions for completion given in clause A.1;
- c) include the information necessary to uniquely identify both the supplier and the implementation.

## Annex A (normative): PICS pro forma

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PICS pro forma in this annex so that it can be used for its intended purposes and may further publish the completed PICS pro forma.

### A.1 Guidance for completing the ICS pro forma

#### A.1.1 Purposes and structure

The purpose of this PICS pro forma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in relevant specifications may provide information about the implementation in a standardized manner.

The PICS pro forma is subdivided into clauses for the following categories of information:

- instructions for completing the PICS pro forma;
- identification of the implementation;
- identification of the protocol;
- PICS pro forma tables (for example: Major capabilities, etc.).

#### A.1.2 Abbreviations and conventions

This annex does not reflect dynamic conformance requirements but static ones. In particular, a condition for support of a PDU parameter does not reflect requirements about the syntax of the PDU (i.e. the presence of a parameter) but the capability of the implementation to support the parameter.

In the sending direction, the support of a parameter means that the implementation is able to send this parameter (but it does not mean that the implementation always sends it).

In the receiving direction, it means that the implementation supports the whole semantic of the parameter that is described in the related protocol specification.

As a consequence, PDU parameter tables in this annex are not the same as the tables describing the syntax of a PDU in the reference specification.

The PICS pro forma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [5].

##### Item column

The item column contains a number which identifies the item in the table.

##### Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

##### Reference column

The reference column gives reference to the relevant sections in core specifications.

## Status column

The various status used in this annex are in accordance with the rules in table A.1.

**Table A.1: Key to status codes**

Status code	Status name	Meaning
m	mandatory	The capability shall be supported. It is a static view of the fact that the conformance requirements related to the capability in the reference specification are mandatory requirements. This does not mean that a given behaviour shall always be observed (this would be a dynamic view), but that it shall be observed when the implementation is placed in conditions where the conformance requirements from the reference specification compel it to do so. For instance, if the support for a parameter in a sent PDU is mandatory, it does not mean that it shall always be present, but that it shall be present according to the description of the behaviour in the reference specification (dynamic conformance requirement).
o	optional	The capability may or may not be supported. It is an implementation choice.
n/a	not applicable	It is impossible to use the capability. No answer in the support column is required.
c.<integer>	conditional	The requirement on the capability ("m", "o", "n/a") depends on the support of other optional or conditional items. <integer> is the identifier of the conditional expression.
o.<integer>	qualified optional	For mutually exclusive or selectable options from a set. <integer> is the identifier of the group of options, and the logic of selection of the options.

## Mnemonic column

The Mnemonic column contains mnemonic identifiers for each item.

## Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [5], are used for the support column:

Y or y	supported by the implementation
N or n	not supported by the implementation
N/A, n/a or -	no answer required (allowed only if the status is N/A, directly or after evaluation of a conditional status)

## References to items

For each possible item answer (answer in the support column) within the PICS pro forma there exists a unique reference, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table.

EXAMPLE: A.5/4 is the reference to the answer of item 4 in table A.5.

## A.1.3 Instructions for completing the PICS pro forma

The supplier of the implementation may complete the PICS pro forma in each of the spaces provided. More detailed instructions are given at the beginning of the different clauses of the PICS pro forma.



## A.2 Identification of the Network Equipment

### A.2.1 Date of the statement

Identification of the Network Equipment should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS should be named as the contact person.

Date of the statement:

.....

### A.2.2 Network Equipment Under Test identification

Name:

.....

.....

Hardware configuration:

.....

.....

.....

Software configuration:

.....

.....

.....

### A.2.3 Product supplier

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....