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TECHNICAL SPECIFICATION

**Core Network and Interoperability Testing (INT);
Communication Waiting (CW) using IP Multimedia (IM)
Core Network (CN) subsystem;
Conformance test specification (3GPP™ Release 12);
Part 1: Protocol Implementation Conformance
Statement (PICS)**

Reference

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Keywords

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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 Conformance Test Specification of Communication Waiting (CW) using IP Multimedia (IM) Core Network (CN) subsystem, as identified below:

Part 1: "Protocol Implementation Conformance Statement (PICS)";

Part 2: "Test Suite Structure and Test Purposes (TSS&TP)".

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).

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Introduction

To evaluate 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 Communication Waiting (CW) using IP Multimedia (IM) Core Network (CN) subsystem in compliance with the relevant requirements, and in accordance with the relevant guidance given in ISO/IEC 9646-7 [4] and ETSI ETS 300 406 [2].

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 124 615: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Communication Waiting (CW) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol Specification (3GPP TS 24.615 Release 12)".

[2] ETSI ETS 300 406 (1995): "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[3] ISO/IEC 9646-1: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".

[4] ISO/IEC 9646-7: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".

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 124 615 [1], ISO/IEC 9646-1 [3], ISO/IEC 9646-7 [4] and the following apply:

ICS pro forma: document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS

Implementation Conformance Statement (ICS): statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented

  NOTE: The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, information object ICS, etc.

Protocol ICS (PICS): ICS for an implementation or system claimed to conform to a given protocol specification

  NOTE: This may contain additional information.

3.2   Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 124 615 [1] and the following apply:

  ICS   Implementation Conformance Statement
  IUT   Implementation Under Test
  PICS   Protocol ICS
  SCS   System Conformance Statement
  SUT   System Under Test

4   Conformance to this PICS pro forma specification

4.0   Introduction

If it claims to conform to the present document, the actual PICS pro forma to be filled in by a supplier shall be technically equivalent to the text of the PICS pro forma given in clause 4, and shall preserve the numbering/naming and ordering of the pro forma items.

A PICS which conforms to the present document shall be a conforming PICS pro forma completed in accordance with the guidance for completion given in clause 4.1.

The right to copy

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4.1   Guidance for completing the PICS pro forma

4.1.1   Purposes and structure

The purpose of this ICS pro forma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in ETSI TS 124 615 [1] may provide information about the implementation in a standardized manner.

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

- guidance for completing the ICS pro forma;

- identification of the implementation;

- identification of the <reference specification type>;

- global statement of conformance;

- roles;

- user role:

  - major capabilities;

- network role:

  - major capabilities.

4.1.2   Abbreviations and conventions

The ICS pro forma contained in this clause is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [4].

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 the requirement or option supported by the implementation?".

Status column

The following notations, defined in ISO/IEC 9646-7 [4], are used for the status column:

m   mandatory - the capability is required to be supported.

o   optional - the capability may be supported or not.

n/a   not applicable - in the given context, it is impossible to use the capability.

x   prohibited (excluded) - there is a requirement not to use this capability in the given context.

o.i   qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies an unique group of related optional items and the logic of their selection which is defined immediately following the table.

ci   conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying an unique conditional status expression which is defined immediately following the table.

Reference column

The reference column makes reference to ETSI TS 124 615 [1], except where explicitly stated otherwise.

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 [4], 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).

If this PICS pro forma is completed in order to describe a multiple-profile support in a system, it is necessary to be able to answer that a capability is supported for one profile and not supported for another. In that case, the supplier shall enter the unique reference to a conditional expression, preceded by "?" (e.g. ?3). This expression shall be given in the space for comments provided at the bottom of the table. It uses predicates defined in the SCS, each of which refers to a single profile and which takes the value TRUE if and only if that profile is to be used.

EXAMPLE 1:   ?3: IF prof1 THEN Y ELSE N

NOTE: As stated in ISO/IEC 9646-7 [4], support for a received PDU requires the ability to parse all valid parameters of that PDU. Supporting a PDU while having no ability to parse a valid parameter is non-conformant. Support for a parameter on a PDU means that the semantics of that parameter are supported.

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: <min value> .. <max value>
  example: 5 .. 20

- list of values: <value1>, <value2>, ..., <valueN>
  example: 2 ,4 ,6 ,8, 9
  example: '1101'B, '1011'B, '1111'B
  example: '0A'H, '34'H, '2F'H

- list of named values: <name1>(<val1>), <name2>(<val2>), ..., <nameN>(<valN>)
  example: reject(1), accept(2)

- length: size (<min size> .. <max size>)
  example: size (1 .. 8)

Values supported column

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

References to items

For each possible item answer (answer in the support column) within the ICS pro forma a unique reference exists, 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. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.), respectively.

EXAMPLE 2:   A.5/4 is the reference to the answer of item 4 in table 5 of annex A.

EXAMPLE 3:   A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table 6 of annex A.

Prerequisite line

A prerequisite line takes the form: Prerequisite: 4.5.1/1.

A prerequisite line after a clause or table title indicates that the whole clause or the whole table is not required to be completed if the predicate is FALSE.

4.1.3   Instructions for completing the PICS pro forma

The supplier of the implementation shall complete the PICS pro forma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided, using the notation described in clause 4.1.2.

However, the tables containing in "user role" clause shall only be completed for user implementations, and the tables containing in "network role" clause shall only be completed for network implementations.

If necessary, the supplier may provide additional comments in space at the bottom of the tables or separately.

More detailed instructions are given at the beginning of the different clauses of the ICS pro forma.

4.2   Identification of the implementation

4.2.0   Introduction

Identification of the Implementation Under Test (IUT) and the system in which it resides (the System Under Test (SUT)) 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.

4.2.1   Date of the statement

....

4.2.2   Implementation Under Test (IUT) identification

IUT name:

....

....

IUT version:

....

4.2.3   System Under Test (SUT) identification

SUT name:

....

....

Hardware configuration:

....

....

....

Operating system:

....

4.2.4   Product supplier

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

....

4.2.5   Client (if different from product supplier)

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

4.2.6 PICS contact person

(A person to contact if there are any queries concerning the content of the ICS)

Name:

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

....

4.3 Identification of the Protocol Specification

This PICS pro forma applies to the following standard:

ETSI TS 124 615 (2015-07) [1]: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Communication Waiting (CW) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol Specification (3GPP TS 24.615 version 12.3.0 Release 12)".

4.4 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No)   ....

NOTE: Answering "No" to this question indicates non-conformance to the <reference specification type> specification. Non-supported mandatory capabilities are to be identified in the ICS, with an explanation of why the implementation is non-conforming, on pages attached to the PICS pro forma.

4.5 Roles

Table 4.5.1: Roles

Item	Role	Reference	Status	Support
1	User	4.5.2.1	o.1	
2	Network	4.5.2.4	o.1	

o.1:   It is mandatory to support exactly one of these items.

4.6   User role

4.6.0   Introduction

This clause contains the PICS pro forma tables related to the user role. They need to be completed only for user implementations:

Prerequisite: 4.5.1/1 -- user role

4.6.1   Major capabilities

Table 4.6.1: User Equipment capabilities

Item	Requirement or option	Reference	Status	Support
1	Does the User Equipment of the user B indicates to the user that the outgoing communication is being treated as a waiting communication?	4.5.5.3.2	o	
2	Does the User Equipment of the user C indicates to the user that the outgoing communication is being treated as a waiting communication?	4.5.5.3.4	o	
3	Is the User Equipment of the user B able to send a Communication Waiting indication in a 180 Ringing and send the Alert-Info header with the value <urn:alert:service:call-waiting>?	4.5.5.3.2	o	
4	Does the User Equipment of the user B accepts and understands the XML CW MIME attachment and notify the user?	4.5.5.3.2	o	
5	Does the User Equipment of the user B starts timer T_{UE-CW}?	4.5.5.3.2	o	
6	Does the User Equipment of the user B uses the value of the Expires header received in the INVITE request?	4.5.5.3.2	c21	

c21:   IF 4.6.1/1 THEN m ELSE n/a   -- incoming call

4.7   Network role

4.7.0   Introduction

This clause contains the PICS pro forma tables related to the network role. They need to be completed only for network implementations:

Prerequisite: 4.5.1/2 network role

4.7.1   Major capabilities

Table 4.7.1: Network related requirements and options

Item	Requirement or option	Reference	Status	Support
1	Is the CW condition determined by the AS based on the receipt of a 180 (Ringing) response with an Alert-Info header field set to "urn:alert:service:call-waiting"?	4.5.5.2/[1]	o	
2	Is the CW condition determined by the AS based on validation of the "approaching NDUB" condition?	4.5.5.2/[1]	o	
3	Does the AS initiate the procedures for the provision of an announcement to the calling?	4.5.5.2/[1]	o	
4	Does the Application Server starts the timer T_{AS-CW} timer?	4.5.5.2/[1]	o	
5	Does the Application Server Supports the Call diversion service?	4.6.8/[1]	o	
6	Does the Application Server Supports the Service configuration via Ut interface?	4.8/[1]	o	
7	Does the Network includes an Expires header set to the value of TAS-CW timer in the INVITE sent to user B?	4.5.5.2/[1]	o	

4.7.2   Values

Prerequisite: 4.5.1/2 network role

Table 4.7.2: Timers

Item	Requirement or option	Reference	Status	Support	Values	
					Allowed	Supported
1	Timer T_{AS-CW}	4.7/[1]	o		Service provider option	
2	Timer T_{UE-CW}	4.5.5.3.2/[1]	o		manufacturer option	

History

Document history		
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V3.1.1	October 2015	Publication
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