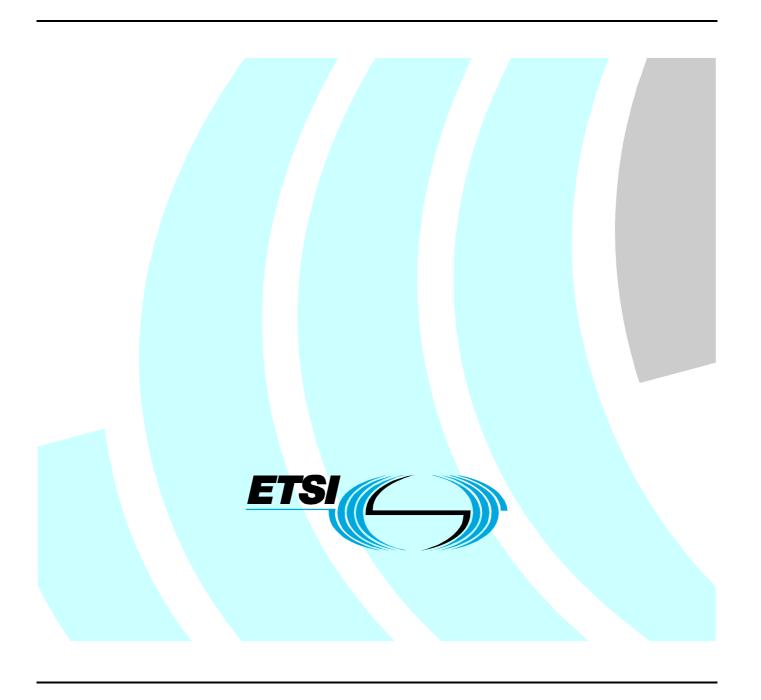# ETSI TS 102 710-1 V3.1.1 (2011-05)

Technical Specification

**IMS Network Testing (INT);
Interworking between the IP Multimedia (IM)
Core Network (CN) subsystem and
Circuit Switched (CS) networks
(Release 8);
Part 1: Protocol Implementation Conformance
Statement (PICS)**

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Contents

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee IMS Network Testing (INT).

The present document is part 1 of a multi-part deliverable covering the Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks (Release 8), as identified below:

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

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

1   Scope

The present document specifies the Protocol Implementation Conformance Statement for SIP-ISUP Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks based on TS 129 163 [1] (Release 8).

2   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 reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://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.

2.1   Normative references

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

[1]   ETSI TS 129 163: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks (3GPP TS 29.163 Release 8)".

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

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

2.2   Informative references

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.

[i.1]   ITU-T Recommendation Q.730: "ISDN User Part supplementary services".

[i.2]   ITU-T Recommendations Q.731.1 to Q.731.8: "Stage 3 description for number identification supplementary services using Signalling System No. 7".

[i.3]   ITU-T Recommendations Q.732.2 to Q.732.7: "Stage 3 description for call offering supplementary services using Signalling System No. 7".

[i.4]   ITU-T Recommendations Q.733.1 to Q.733.5: "Stage 3 description for call completion supplementary services using Signalling System No. 7".

[i.5]   ITU-T Recommendations Q.734.1 to Q.734.2: "Stage 3 description for multiparty supplementary services using Signalling System No. 7".

[i.6]   ITU-T Recommendations Q.735.1 to Q.735.6: "Stage 3 description for community of interest supplementary services using Signalling System No. 7".

[i.7]   ITU-T Recommendations Q.736.1 to Q.736.3: "Stage 3 description for charging supplementary services using Signalling System No. 7".

[i.8]   ITU-T Recommendation Q.737.1: "Stage 3 description for additional information transfer supplementary services using Signalling System No. 7 : User-to-user signalling (UUS)".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in [1], [2], [3] and the following apply:

PICS proforma: document, in the form of a questionnaire, which when completed for an implementation or system becomes a PICS

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

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

NOTE: This may contain additional information.

3.2 Symbols

For the purposes of the present document, the symbols given in [1] apply.

3.3 Abbreviations

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

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

3.4 Conformance to this PICS proforma specification

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

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

4 PICS proforma for TS 129 163

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 proforma in this clause so that it can be used for its intended purposes and may further publish the completed PICS.

4.1 Guidance for completing the PICS proforma (purposes and structure)

The purpose of this ICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in TS 129 163 [1] may provide information about the implementation in a standardized manner.

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

- guidance for completing the PICS proforma;

- identification of the implementation;

- identification of the <reference specification type>;

- global statement of conformance;

- roles.

4.2 Abbreviations and conventions

The PICS proforma contained in this clause is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [3].

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?".

Status column

The following notations, defined in ISO/IEC 9646-7 [3], 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 a 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 a unique conditional status expression which is defined immediately following the table.

Reference column

The reference column makes reference to TS 129 163 [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 [3], 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 proforma 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: ?3: IF prof1 THEN Y ELSE N

In case of protocol, the following text should be added:

NOTE: As stated in ISO/IEC 9646-7 [3], 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.

If the ICS proforma does not contain tables with "values allowed" columns and "values supported" columns, the two following column descriptions shall be removed.

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.

4.3   Instructions for completing the PICS proforma

The supplier of the implementation shall complete the PICS proforma 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 4.2.

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 PICS proforma.

5   Identification of the implementation

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 ICS should be named as the contact person.

5.1   Date of the statement

....

5.2   Implementation Under Test (IUT) identification

IUT name:

....

....

IUT version:

....

5.3   System Under Test (SUT) identification

SUT name:

....

....

Hardware configuration:

....

....

....

Operating system:

....

5.4   Product supplier

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

....

5.5 Client (if different from product supplier)

Name:

....

Address:

....

....

....

Telephone number:

....

Facsimile number:

....

E-mail address:

....

Additional information:

....

....

5.6 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:

....

....

....

5.7 Global statement of conformance

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

NOTE: Answering "No" to this question indicates non-conformance to the [1] 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 proforma.

6 Statement of conformance to TS 129 163

6.1 Major capabilities

Table 6.1.1: Major capabilities

Item	Item description	Reference	Status	Support
1	The System Under Test is interconnected with an ISUP network	7.2	o.1	
2	The System Under Test is interconnected with an BICC network	7.3	o.1	
o.1:	It is mandatory to support exactly one of these items.			
Comments:				

6.2 Basic call capabilities

Table 6.2.1: Basic call capabilities

Item	Item description	Reference	Status	Support
1	The System is able to support preconditions requested in the Supported header or Require header?	7.2.3.1.1	o	
2	The SUT sends the IAM indicating the COT procedure immediately after the reception of the INVITE and precondition extension is included in the SIP Supported or Require header	7.2.3.1.1	c7211	
3	The SUT sends the INVITE request without waiting for an outstanding COT message	7.2.3.2.1.2	o.2	
4	the SUT defers sending the INVITE request until receiving a COT message	7.2.3.2.3	o.2	
5	The SUT supports the PSTN XML Schema to be used for providing the BearerCapability, Low Layer Compatibility, High Layer Compatibility and Progress indicator embedded as body in SIP messages	F.2	o	
6	The Forward call indicators Interworking indicator is set to '0', ISDN user part/BICC indicator is set to '1', ISDN access indicator is set to '1' if the TMR in the IAM is sent with the value '64 kbit/s unrestricted'	7.2.3.1.2.3	o	
7	The sending of the User Teleservice Information parameter is supported driven from the PSTN XML HighLayerCharacteristics element	7.2.3.1.2.5	c7212	
8	The HOP counter procedure is supported and mapping from/to the Max-Forwards header is supported	7.2.3.1.2.9	o	
9	The P-Early-Media header is supported	7.2.3.1.4, 7.2.3.1.4A, 7.2.3.1.4B	o	
10	The SUT generates a Call-Info header field, or an Alert-Info header field to provide media instead of the in-band media received from the PSTN	7.2.3.1.4, 7.2.3.1.4A	o	
11	The SUT sends an INR message to request the calling party number and not send the INVITE request until receiving an INF message with calling party number If no calling party number is received in the incoming IAM message	7.2.3.2.1.3	o	

Item	Item description	Reference	Status	Support
12	If no calling party number is received in the INF message the SUT reject the communication	7.2.3.2.1.3	c7213	
13	The sending of 'dai' parameter is supported	7.2.3.2.2B.2	o	
14	The SUT has the knowledge that the call is transited to a PSTN network, the SUT decides not to generate the awaiting answer indication when receiving the 180 Ringing message and backward early media is not authorized	7.2.3.2.4	o	
15	The SUT is supporting capabilities associated with the Alert-Info header field	7.2.3.2.4	o	
16	the SUT **initiates** the sending of the awaiting answer indication if the header authorizes backward early media	7.2.3.2.4	o	
17	the SUT **terminates** the sending of the awaiting answer indication if the header authorizes backward early media	7.2.3.2.4	o	
18	The Backward call indicators Interworking indicator is set to '0', ISDN user part/BICC indicator is set to '1', ISDN access indicator is set to '1' if the TMR in the IAM was received with the value '64 kbit/s unrestricted'	7.2.3.2.5.1	o	
19	Does the SUT instruct the MGW to send media available at the associated URL to the PSTN leg of the communication if a reINVITE is received containing a Call-Info header field?	7.2.3.2.11A	o	
20	Does the SUT supporting the capabilities associated with the Error-Info header field the SUT instruct the IM-MGW to play out media available at the associated URL towards PSTN	7.2.3.2.12	o	
21	The PSTN XML sendingCompleteIndication, if present, is mapped to the sending terminated digit (hexadecimal digit F) in the address signals field of the Called Party Number parameter.	7.2.3.1.2.1	o	
o.2:	It is optional to support exactly one of these items.			
c7211:	IF 7.2.1/1 THEN o ELSE n/a			
c7212:	IF 7.2.1/5 THEN o ELSE n/a			
c7213:	IF 7.2.1/11 THEN o ELSE n/a			
Comments:				

Table 6.2.2: Number portability and Carrier based routing

Item	Item description	Reference	Status	Support
1	Number Portability Separate Directory Number Addressing Method is used	7.2.3.1.2A.1.1	o.3	
2	Number Portability Concatenated Addressing Method is used	7.2.3.1.2A.1.2	o.3	
3	Number Portability Separate Network Routing Number Addressing Method is used	7.2.3.1.2A.1.3	o.3	
4	Number Portability Forward Information parameter is sent	7.2.3.1.2A.2	o	
5	Carrier-based routeing supported	7.2.3.1.2B, 7.2.3.2.2B	o	
6	The Transit Network Selection parameter is sent	7.2.3.1.2B.1	c7221	
7	The Carrier Selection Information parameter is sent	7.2.3.1.2B.2	c7221	
8	The sending of 'cic' parameter supported	7.2.3.2.2B1	c7221	
9	The sending of 'dai' parameter is supported	7.2.3.2.2B.2	c7221	
o.3:	It is optional to support exactly one of these items.			
c7221:	IF 7.2.2/5 THEN o ELSE n/a			

Table 6.2.3: Overlap capability

Item	Item description	Reference	Status	Support
1	The 'In-dialogue Method' is supported	7.2.3.1.3A.2	o	
2	The 'Multiple INVITE Method' is supported	7.2.3.1.3A.3	o	
3	If the end of the address signalling is determined the SUT inserts the PSTN XML sendingCompleteIndication	7.2.3.2.1.4	c7231	
c7231:	IF 7.2.1/5 THEN o ELSE n/a			

Table 6.2.4: ISDN bearer capabilities

Item	Item description	Reference	Status	Support
1	The SUT supports the interworking of a CLEARMODE codec in the received INVITE request and PSTN XML Bearer Capability element is present	7.2.3.1.1	o	
2	The SUT supports the interworking of Transmission Medium Requirement 64 kbit/s received in the IAM	7.2.3.2.1	o	

6.3 Simulation service capabilities

Table 6.3.1: Simulation service major capabilities

Item	Item description	Reference	Status	Support
1	The SUT behaviour is related to supplementary services as defined in ITU-T Recommendations Q.730 [i.1] to Q.737 [i.8] when interworking with an IMS which does not use a Multimedia Telephony Application Server (MTAS) providing supplementary services according to 3GPP	7.4	o	
2	the SUT behaviour is related to supplementary services as defined in ITU-T Recommendations Q.730 [i.1] to Q.737 [i.8] when interworking with an IMS which uses a Multimedia Telephony Application Server (MTAS) providing supplementary services according to 3GPP	7.5	o	

Table 6.3.2: Simulation service interworking capabilities

Item	Item description	Reference	Status	Support
1	The interworking of Calling line identification presentation/restriction (CLIP/CLIR) respectively Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR) is supported	7.4.1, 7.5.1	o	
2	Connected line presentation and restriction (COLP/COLR) respectively Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR) is supported	7.4.2, 7.5.2	o	
3	The interworking of Malicious call identification respectively Malicious Communication Identification (MCID) is supported	7.4.4, 7.5.9	o	
4	The interworking of Subaddressing (SUB) is supported	7.4.5	o	
5	The interworking of Call Forwarding Busy (CFB)/ Call Forwarding No Reply (CFNR)/Call Forwarding Unconditional (CFU)/Call Deflection (CD) respectively Communication Diversion (CDIV) is supported	7.4.6, 7.4.7, 7.5.4	o	
6	The interworking of Explicit Call Transfer (ECT) respectively is supported	7.4.8,	o	
7	The interworking of Call Waiting (CW) is supported	7.4.9	o	
8	The interworking of Call Waiting (CW) is supported	7.5.12	o	
9	The interworking of Call Hold (HOLD) respectively Communication Hold (HOLD) is supported	7.4.10, 7.5.5	o	
10	The interworking of Call Completion on busy subscriber (CCBS) is supported	7.4.11	o	
11	The interworking of Completion of Calls on No Reply (CCNR) is supported	7.4.12	o	
12	The interworking of Terminal Portability (TP) is supported	7.4.13	o	
13	The interworking of Conference calling (CONF)/ Three-Party Service (3PTY) is supported	7.4.14	o	
14	The interworking of Closed User Group (CUG) is supported	7.4.16	o	
15	The interworking of Multi-Level Precedence and Pre-emption (MLPP) is supported	7.4.17	o	
16	The interworking of Global Virtual Network Service (GVNS) is supported	7.4.18	o	
17	The interworking of Reverse charging (REV) is supported	7.4.20	o	
18	The interworking of User-to-User Signalling (UUS) is supported	7.4.21	o	
19	The interworking of Anonymous Call rejection (ACR) is supported	7.4.23	o	
20	The interworking Conference call (CONF) is supported	7.5.6	o	
21	The interworking of Anonymous Communication Rejection (ACR) and Communication Barring (CB) is supported	7.5.7	o	
22	The interworking of Message Waiting Indication (MWI) is supported	7.5.8	o	
23	The interworking of Closed User Group (CUG) is supported	7.5.10	o	
24	The interworking of CCBS/CCNR is supported	7.5.11	o	

Table 6.3.3: OIP interworking capabilities

Item	Item description	Reference	Status	Support
1	The SUT include a network provided E.164 Calling party number if no P-Asserted-Identity was received	7.5.1, 7.2.3.1.2.6	c7331	
2	The SUT omits the Address signals of the Calling party number if no P-Asserted-Identity was received	7.5.1, 7.2.3.1.2.6	c7331	
3	The SUT set the APRI of the Calling party number to '*Address not available*' if no P-Asserted-Identity was received	7.5.1, 7.2.3.1.2.6	c7332	
4	The SUT sets the APRI of the Calling party number to 'presentation restricted by network' instead of the 'presentation restricted' if no P-Asserted-Identity was received	7.5.1, 7.2.3.1.2.6	o	
5	The SUT omits the additional calling party number parameter if the Calling party number has been omitted if no P-Asserted-Identity was received	7.5.1, 7.2.3.1.2.6	c7332	
6	The SUT omits the additional calling party number parameter if the P-Asserted-Identity has been received	7.5.1, 7.2.3.1.2.6	o	
o.4:	It is mandatory to support exactly one of these items.			
c7331	IF 7.3.3/1 THEN o.4 ELSE n/a			
c7332	IF 7.3.3/2 THEN o ELSE n/a			

Table 6.3.4: COLP interworking capabilities

Item	Item description	Reference	Status	Support
1	The SUT invokes the COLP service by setting the "Connected Line Identity Request indicator" field of the "Optional forward call indicators" parameter in the sent IAM to "requested"	7.4.2.1.1	o	

Table 6.3.5: CDIV interworking capabilities

Item	Item description	Reference	Status	Support
1	The SUT maps the escaped Reason header in the second last hi-targeted-uri into the Event indicator of the CPG national values	7.4.6.2.2, table 7.4.6.2.2.7	o	
2	The SUT maps the Redirecting reason in the Call diversion information into the Reason header in the second last hi-targeted-to-uri in the History-Info header	7.4.6.3.3, table 7.4.6.3.3.3 table 7.4.6.3.3.4 table 7.4.6.3.3.5	o	
3	The SUT maps the cause parameter in the last hi-targeted-uri into the Event indicator national values	7.5.4.2.1 table 7.5.4.2.1.7	o	

Table 6.3.6: HOLD interworking capabilities

Item	Item description	Reference	Status	Support
1	The SUT allows to hold and retrieve a session in the early dialogue	7.4.10	o	

Table 6.3.7: REV interworking capabilities

Item	Item description	Reference	Status	Support
1	The SUT discards the REV service invocation without affect the call	7.4.20	o.5	
2	The SUT returns explicit rejection of the REV service invocation	7.4.20	o.5	
o.5:	It is optional to support exactly one of these items.			

Table 6.3.8: User-to-user interworking capabilities

Item	Item description	Reference	Status	Support
1	The MGCF supports the User-to-user indicator (the User-to-user indicator is recognized)	7.4.21.2, 7.4.21.3, 7.4.21.4	o	

Table 6.3.9: CONF interworking capabilities

Item	Item description	Reference	Status	Support
1	The conference event package option is implemented	7.5.6.2	o	

Table 6.3.10: CUG interworking capabilities

Item	Item description	Reference	Status	Support
1	The IMS network does not support the CUG supplementary service	7.5.6.2	o	

6.4   Timers

Table 6.4.1: Timers

Item	Item description	Reference	Status	Support	Values [seconds]	
					Allowed	**Supported**
1	Ti/w1	7.2.3.3	m		4 to 6 (default 4)	
2	Ti/w2	7.2.3.3	m		4 to 20 (default 4)	
3	Ti/w3	7.2.3.3	m		4 to 6 (default 4)	
4	T_{TIR1}	7.2.3.3	o		0,1 to 2 (default 0,1)	

History

Document history		
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