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Technical Specification

Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Interworking between Session Initiation Protocol (SIP) and Bearer Independent Call Control Protocol (BICC) or ISDN User Part (ISUP); Part 3: Test Suite Structure and Test Purposes (TSS&TP) for Profile C

Reference
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Keywords
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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

The present document is part 3 of a multi-part deliverable covering the Interworking between Session Initiation Protocol (SIP) and Bearer Independent Call Control Protocol (BICC) or ISDN User Part (ISUP), as identified below:

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

Part 2: "Test Suite Structure and Test Purposes (TSS&TP) for Profile A and B";

Part 3: "Test Suite Structure and Test Purposes (TSS&TP) for Profile C";

Part 4: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) for Profiles A and B";

Part 5: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) for Profile C".

1 Scope

The present document specifies the network Test Suite Structure and Test Purposes (TSS and TP) Interworking between Session Initiation Protocol (SIP) and Bearer Independent Call Control Protocol (BICCP)or ISDN User Part (ISUP) for the Profile C (SIP-I) described in the ITU-T Recommendation Q.1912.5 [1] and EN 383 001 [2].

A further part of the present document specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma based on the present document.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.
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2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1] ITU-T Recommendation Q.1912.5: "Interworking between Session Initiation Protocol (SIP) and Bearer Independent Call Control protocol or ISDN User Part".

[2] ETSI EN 383 001: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Interworking between Session Initiation Protocol (SIP) and Bearer Independent Call Control (BICC) Protocol or ISDN User Part (ISUP) [ITU-T Recommendation Q.1912.5, modified]".

[3] ITU-T Recommendation Q.850 (1998): "Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part".

[4] IETF RFC 3261 (2002): "SIP: Session Initiation Protocol".

[5] IETF RFC 3312 (2002): "Integration of Resource Management and Session Initiation Protocol (SIP)".

[6] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[7] ISO/IEC 9646-3 (1992): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".

[8] ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[9] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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

[i.2] ITU-T Recommendation Q.731: "Stage 3 description for the number identification supplementary services using SS No.7".

[i.3] ITU-T Recommendation Q.731.7: "Malicious call identification (MCID)".

[i.4] ITU-T Recommendation Q.732: "Call diversion services".

[i.5] ITU-T Recommendation Q.732.7: "Explicit Call Transfer".

[i.6] ITU-T Recommendation Q.733: "Stage 3 description for call completion supplementary services using Signalling System No. 7: Terminal portability (TP)".

[i.7] ITU-T Recommendation Q.734: "Stage 3 description for multiparty supplementary services using Signalling System No. 7 : Conference calling".

[i.8] ITU-T Recommendation Q.734.2: "Three-party service".

[i.9] ITU-T Recommendation Q.735: "Closed user group (CUG)".

[i.10] ITU-T Recommendation Q.737: "User-to-user signalling (UUS)".

[i.11] ITU-T Recommendation Q.784: "ISUP basic call test specification".

[i.12] ITU-T Recommendations Q.764: "Signalling System No. 7 - ISDN User Part signalling procedures".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

- terms defined in SIP / ISUP interworking reference specification;
- terms defined in ISDN layer 3 reference specification;
- terms defined in ISDN User Part (ISUP) reference specification terms defined in ISO/IEC 9646-1 [6], ISO/IEC 9646-3 [7] and in ISO/IEC 9646-7 [8].

Abstract Test Case (ATC): complete and independent specification of the actions required to achieve a specific test purpose, defined at the level of abstraction of a particular Abstract Test Method, starting in a stable testing state and ending in a stable testing state

Abstract Test Method (ATM): description of how an SUT is to be tested, given at an appropriate level of abstraction to make the description independent of any particular realization of a Means Of Testing, but with enough detail to enable abstract test cases to be specified for this method

Abstract Test Suite (ATS): test suite composed of abstract test cases

Implementation Under Test (SUT): implementation of one or more OSI protocols in an adjacent user/provider relationship, being part of a real open system which is to be studied by testing

Means of Testing (MOT): combination of equipment and procedures that can perform the derivation, selection, parameterization and execution of test cases, in conformance with a reference standardized ATS, and can produce a conformance log

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

PIXIT proforma: document, in the form of a questionnaire, which when completed for the SUT becomes the PIXIT

Point of Control and Observation (PCO): point within a testing environment where the occurrence of test events is to be controlled and observed, as defined in an Abstract Test Method

pre-test condition: setting or state in the SUT which cannot be achieved by providing stimulus from the test environment

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

Protocol Implementation eXtra Information for Testing (PIXIT): statement made by a supplier or implementor of an SUT (protocol) which contains or references all of the information related to the SUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the SUT

SIP number: number conforming to the numbering and structure specified in ITU-T Recommendation E.164 [9]

System Under Test (SUT): real open system in which the SUT resides

user: access protocol entity at the user side of the user-network interface where a T reference point or coincident S and T reference point applies

3.1.1 SIP Profile C for interworking between SIP with MIME encoding of ISUP and BICC/ISUP

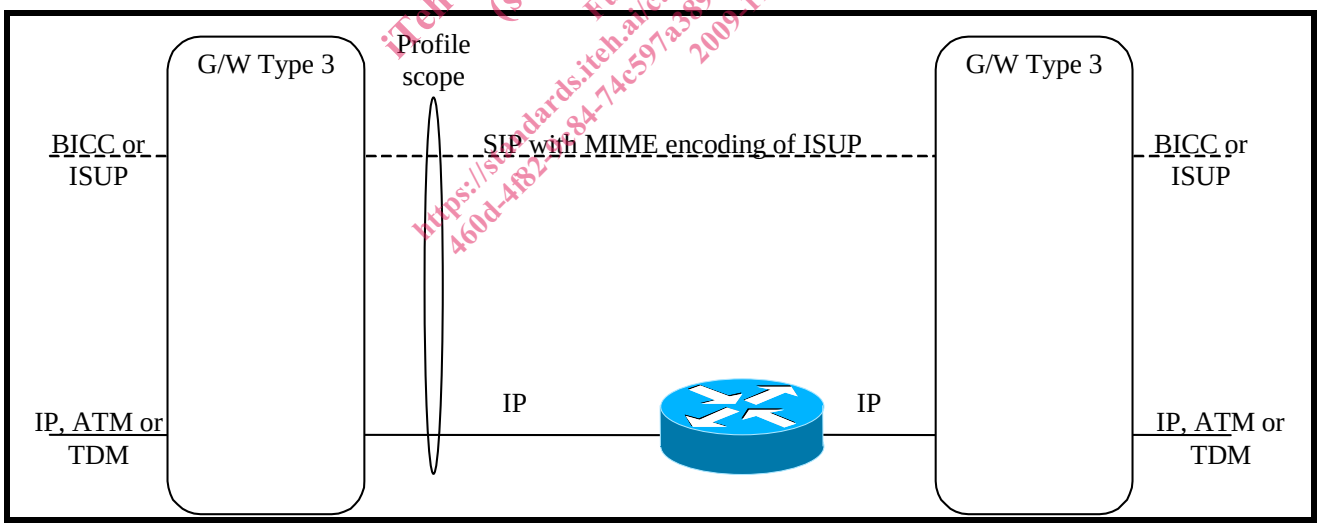

Figure 1: Profile scope for SIP with MIME encoding of ISUP interworking with BICC/ISUP with type 3 gateways

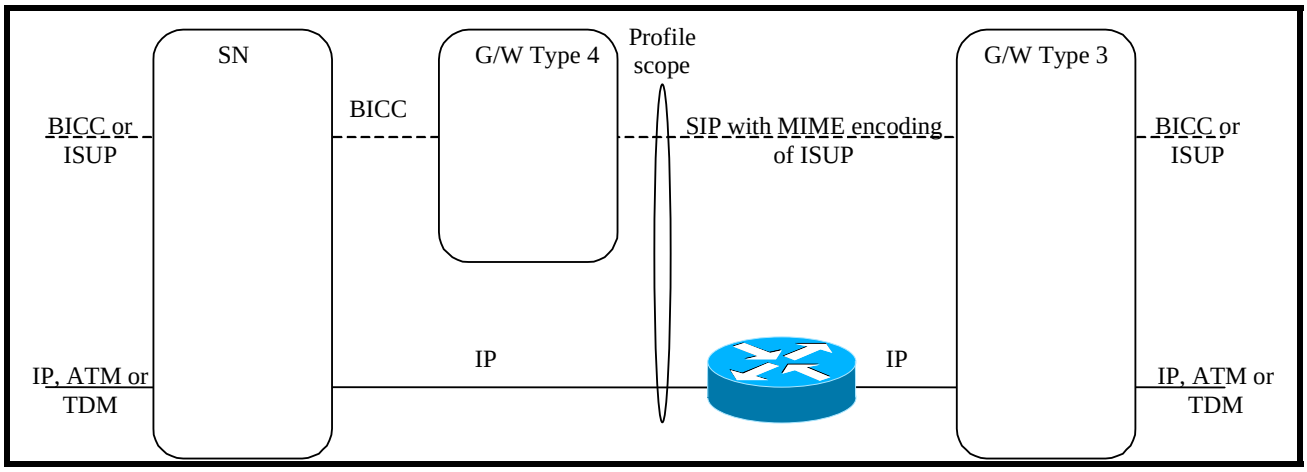

Figure 2: Profile scope for SIP, with MIME encoding of ISUP interworking with BICC/ISUP with type 3 and 4 gateways

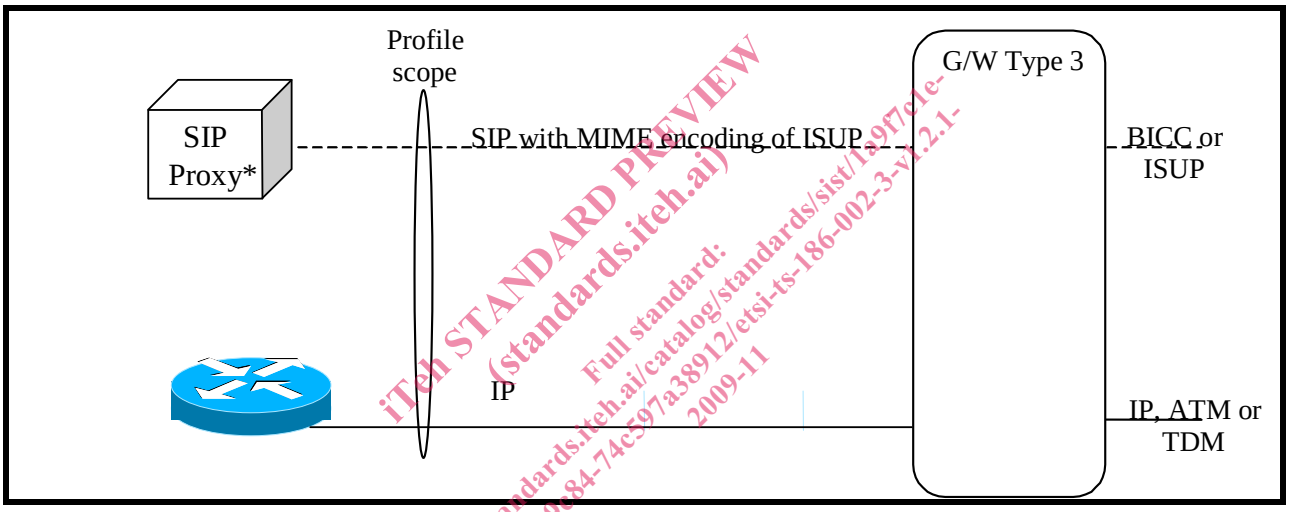

Figure 3: Profile scope for SIP with MIME encoding of ISUP interworking with BICC/ISUP with type 3 gateways

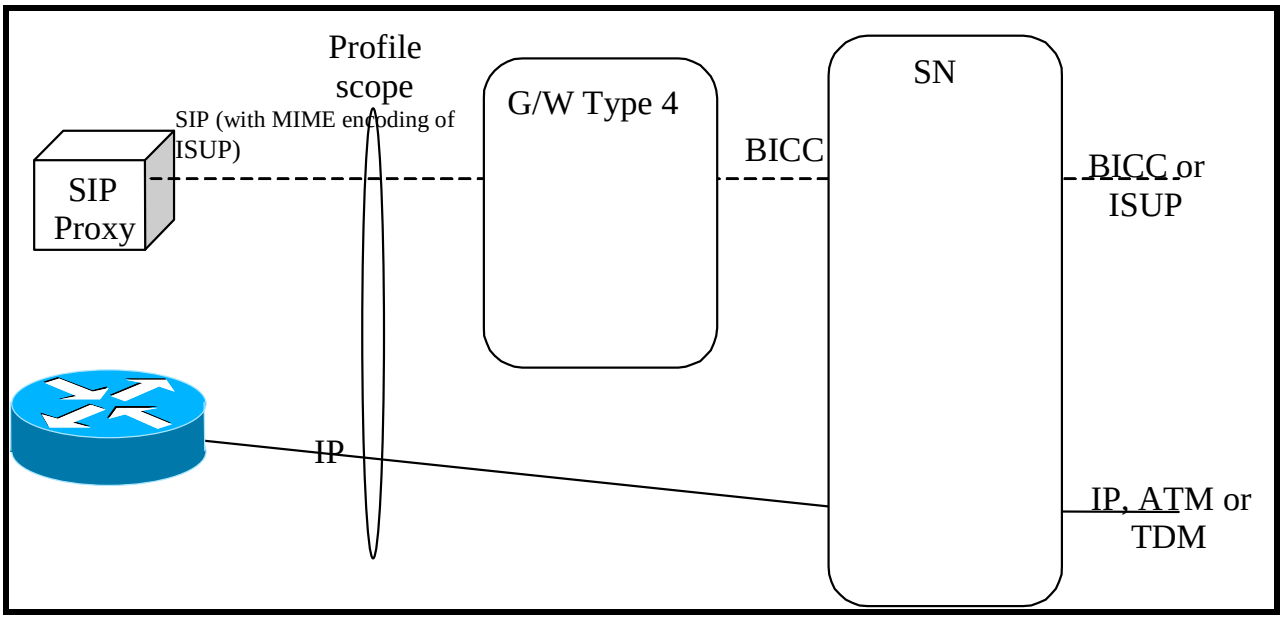

Figure 4: Profile scope for SIP, with MIME encoding of ISUP interworking with BICC/ISUP with type 4 gateway

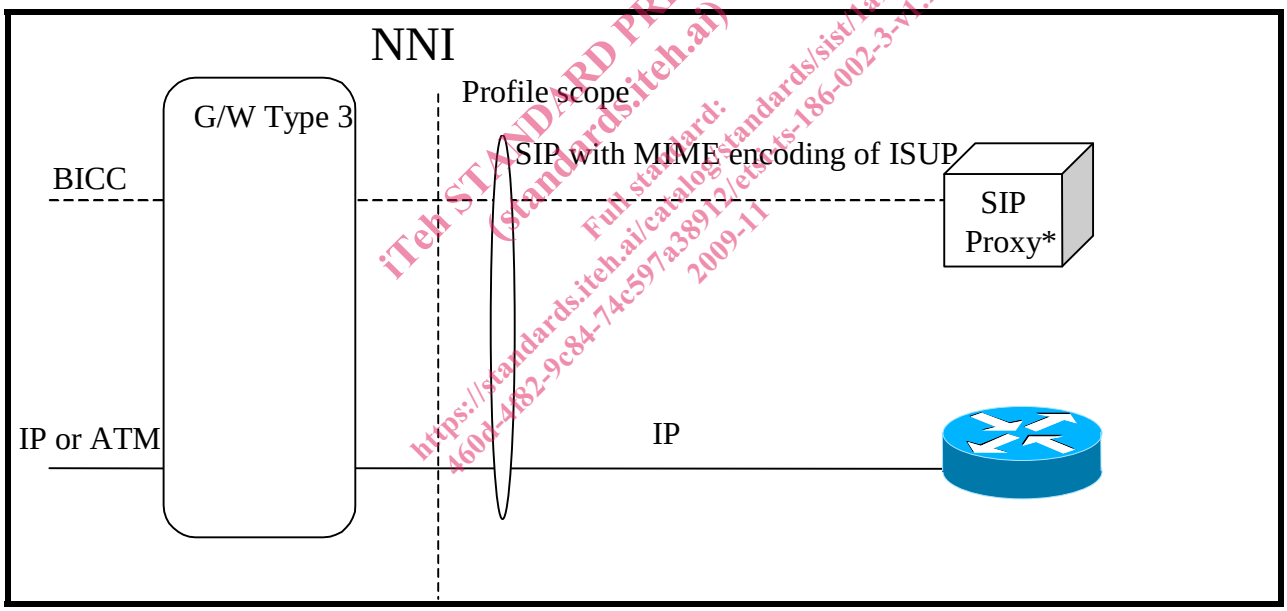

Figure 5: Profile scope for SIP, with MIME encoding of ISUP interworking with BICC/ISUP with type 3 gateway

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3PTY	Three-Party
ACM	Address Complete Message
ANM	ANswer Message
ASP	Abstract Service Primitive
ATC	Abstract Test Case
ATM	Abstract Test Method
ATP	Access Transport Parameter
ATS	Abstract Test Suite
AVP	Attribute-Value Pairs

BC	Bearer Capability
BCI	Backward Call Indicators
BICC	Bearer Independent Call Control protocol
BICCP	Bearer Independent Call Control Protocol
BLA	BLocking Acknowledgement message
BLO	BLOcking message
CC	Country Code
CCBS	Completion of Communication to Busy Subscriber
CD	Call Deflection
CDIV	Call DIVersion
CFB	Call Forwarding Busy
CFN	ConFusioN message
CFNR	Communications Forwarding No Reply
CFU	Call Forwarding Unconditional
CGB	Circuit Group Blocking
CGBA	Circuit Group Blocking Acknowledgement message
CGU	Circuit Group Unblocking message
CGUA	Circuit Group Unblocking Acknowledgement message
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COL	COnnected Line
COLP	COnnected Line identification Presentation
COLR	COnnected Line identification Restriction
CON	CONnect message
CONF	CONFerence calling
COT	COnTinuity message
CPG	Call Progress Message
CPS	Calling Party's Category
CTNb	ConnecTed Number
CUG	Closed User Group
CW	Call Waiting
DISC	DISConnect message
DLE	Destination Local Exchange
DSS1	Digital Subscriber System no. 1
ECT	Explicit Call transfer
FAA	FAcility Accepted message
FAC	FACility message
FAR	FAcility Request message
FCI	Forward Call Indicators
FRJ	Facility ReJect message
GRA	circuit Group Reset Acknowledgement message
GRS	Group ReSet
HLC	High Layer Compatibility
HOLD	Call HOLD
IA	Incomming Access
IAM	Initial Address Message
ICB	Incomming Call Barred
IDR	IDentification Request message
I-IWU	Incoming InterWorking Unit
I-MGCF	Incoming Media Gateway Control Function
IRS	Identification ResponSe message
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITU	International Telecommunication Union
IUT	Implementation Under Test
LOP	LOop Prevention message
MCID	Malicious Call IDentification
MGCF	Media Gateway Control Function
MIME	Multi-purpose Internet Mail Extension
MOT	Means Of Testing
NCI	Nature of Connection Indicators
NDC	National Destination Code

OA	Outgoing Access
OBCI	Optional Backward Call Indicators
O-IWU	Outgoing InterWorking Unit
OLE	Originating Local Exchange
O-MGCF	Outgoing Media Gateway Control Function
OSI	Open Systems Interconnection
PCMA	Pulse Code Modulation A-law
PCMU	Pulse Code Modulation µ-law
PCO	Point of Control and Observation
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PT	Pay load Type
PTC	Parallel Test Component
REL	RELease message
RES	RESUME
RLC	ReLease Complete message
RSC	ReSet Circuit
RTP	Real Time Protocol
SAM	Subsequent Address Message
SDP	Session Description Protocol
SGM	SeGmentation Message
SIP	Session Initiation Protocol
SIP-I	Session Initiation Protocol with encapsulated ISUP
SN	Subscriber Number
SS	Supplementary Services
SUB	SUBaddressing
SUS	SUSPEND
SUT	System Under Test
TMR	Transmission Medium Requirement
TON	Type Of Number
TP	Test Purpose
TSS	Test Suite Structure
UNI	User-Network Interface
UPA	User Part Available message
UPT	User Part Test message
URI	Uniform Resource Identifier
USI	User Service Information parameter
USR	User-to User message
UUS	User to User Signalling