SLOVENSKI STANDARD
SIST EN 300 138-6 V1.4.5:2003

01-december-2003

Digitalno omrežje z integriranimi storitvami (ISDN) - Dopolnilna storitev: zaprta skupina uporabnikov (CUG) - Protokol digitalne naročniške signalizacije št. 1 (DSS1) - 6. del: Abstraktni preskusni niz (ATS) in delna dodatna informacija za preskušanje izvedbe protokola (PIXIT) - Proforma specifikacija za omrežje

Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 6: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-cfe2849d4af5/sist-en-300-138-6-v1-4-5-2003

Ta slovenski standard je istoveten z: **EN 300 138-6 Version 1.4.5**

ICS:

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)

SIST EN 300 138-6 V1.4.5:2003 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

SIST EN 300 138-6 V1.4.5:2003

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-cfe2849d4af5/sist-en-300-138-6-v1-4-5-2003

SIST EN 300 138-6 V1.4.5:2003

ETSI EN 300 138-6 V1.4.5 (1999-11)

European Standard (Telecommunications series)

Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 6: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-cfe2849d4af5/sist-en-300-138-6-v1-4-5-2003

SIST EN 300 138-6 V1.4.5:2003

Reference

REN/SPS-05163-6 (1a1i0jfc.PDF)

Keywords

ISDN, DSS1, supplementary services, CUG, ATS, PIXIT, network

ETSI

Postal address

F-06921 Sophia Antipolis Cedex - FRANCE

Office address

650 Route des Lucioles - Sophia Antipolis
Valbonne - 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

Internet

secretariat@etsi.fr
Individual copies of this ETSI deliverable
can be downloaded from
http://www.etsi.org
If you find errors in the present document, send your
comment to: editor@etsi.fr

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-cfe2849d4af5/sist-en-300-138-6-v1-4-5-2003

Important notice

This ETSI deliverable may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference should be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1999.
All rights reserved.

SIST EN 300 138-6 V1.4.5:2003

Contents

Intellectual Property Rights 5
Foreword 5
1 Scope 6
2 References 6
3 Definitions and abbreviations 7
3.1 Definitions 7
3.2 Abbreviations 8
4 Abstract Test Method (ATM) 8
4.1 Description of ATM used 8
4.1.1 Conventions for test components and PCOs 9
4.1.2 Conventions for variables and parameters 10
4.2 Alternative ATM 10
5 Untestable test purposes 11
6 ATS conventions 11
6.1 Declarations part 11
6.1.1 Type definitions 11
6.1.1.1 Simple type definitions 11
6.1.1.2 Structured type definitions 12
6.1.1.2.1 TTCN structured type definitions 12
6.1.1.2.2 ASN.1 structured type definitions 12
6.1.1.3 ASP type definitions 13
6.1.1.3.1 TTCN ASP type definitions 13
6.1.1.3.2 ASN.1 ASP type definitions 13
6.1.1.4 PDU type definitions 13
6.1.1.4.1 TTCN PDU type definitions 13
6.1.1.4.2 ASN.1 PDU type definitions 13
6.1.2 Test suite constants 13
6.1.3 Test suite parameters 14
6.1.4 Variables 14
6.1.4.1 Test suite variables 14
6.1.4.2 Test case variables 14
6.1.5 Test suite operation definitions 14
6.2 Constraints part 14
6.2.1 Structured type constraint declaration 14
6.2.2 ASN.1 type constraint declaration 15
6.2.2.1 Specification of encoding rules 15
6.2.3 ASP type constraint declaration 15
6.2.3.1 ASN.1 ASP type constraint declaration 15
6.2.3.2 TTCN ASP type constraint declaration 15
6.2.4 PDU type constraint declaration 15
6.2.4.1 ASN.1 PDU type constraint declaration 15
6.2.4.2 TTCN PDU type constraint declaration 15
6.2.5 Chaining of constraints 15
6.2.5.1 Static chaining 15
6.2.5.2 Dynamic chaining 15
6.2.6 Derived constraints 16
6.2.7 Parameterized constraints 16
6.2.8 Value assignment 16
6.2.8.1 Specific values 16
6.2.8.2 Matching values 16
6.3 Dynamic part 16

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-cfe2849d4af5/sist-en-300-138-6-v1-4-5-2003

SIST EN 300 138-6 V1.4.5:2003

6.3.1 Test cases 16
6.3.2 Test steps 17
6.3.2.1 PTC1_IN 17
6.3.2.2 PTC1_OUT 17
6.3.3 Defaults 17

7 ATS to TP map 17

8 PCTR conformance 17

9 PIXIT conformance 17

10 ATS conformance 18

Annex A (normative): Protocol Conformance Test Report (PCTR) proforma 19

A.1 Identification summary 19
A.1.1 Protocol conformance test report 19
A.1.2 IUT identification 19
A.1.3 Testing environment 20
A.1.4 Limits and reservations 20
A.1.5 Comments 20

A.2 IUT conformance status 20

A.3 Static conformance summary 20

A.4 Dynamic conformance summary 21

A.5 Static conformance review report 21

A.6 Test campaign report 22

A.7 Observations 23

Annex B (normative): Partial PIXIT proforma 24

B.1 Identification summary 24

B.2 Abstract test suite summary 24

B.3 Test laboratory 24

B.4 Client (of the test laboratory) 25

B.5 System Under Test (SUT) 25

B.6 Protocol information 26
B.6.1 Protocol identification 26
B.6.2 Parameter values 26
B.6.3 Configuration of IUT 28
B.6.4 Parameter values - information element codings 28
B.6.5 Parameter values - information elements received from IUT 28
B.6.6 CUG features 28
B.6.7 Timer values 29

B.7 Basic call PIXIT items 29
B.7.1 Parameter values - information element codings 29

Annex C (normative): Abstract Test Suite (ATS) 30

C.1 The TTCN Graphical form (TTCN.GR) 30

C.2 The TTCN Machine Processable form (TTCN.MP) 30

Annex D (informative): General structure of ATS 31

History 32

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-ef2849d4af5/sist-en-300-138-6-v1.4.5-2003

SIST EN 300 138-6 V1.4.5:2003

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 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 (http://www.etsi.org/ipr).

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 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 European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocols and Switching (SPS).

The present document is part 6 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) Closed User Group (CUG) supplementary service, as described below:

Part 1: "Protocol specification";

Part 2: "Protocol Implementation Conformance Statement (PICS) proforma specification";

Part 3: "Test Suite Structure and Test Purposes (TSS&TP) specification for the user";

Part 4: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the user";

Part 5: "Test Suite Structure and Test Purposes (TSS&TP) specification for the network";

Part 6: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network".

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/aed19498-4799-481f-a251-cfe2849d4af5/sist-en-300-138-6-v1.4.5-2003

The present version updates the references to the basic call specifications.

National transposition dates	
Date of adoption of this EN:	29 October 1999
Date of latest announcement of this EN (doa):	31 January 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 July 2000
Date of withdrawal of any conflicting National Standard (dow):	31 July 2000

SIST EN 300 138-6 V1.4.5:2003

1 Scope

This sixth part of EN 300 138 specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the Network side of the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [10]) of implementations conforming to the stage three standard for the Closed User Group (CUG) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, EN 300 138-1 [2].

EN 300 138-5 [4] specifies the Test Suite Structure and Test Purposes (TSS&TP) related to this ATS and partial PIXIT proforma specification. Other parts specify the TSS&TP and the ATS and partial PIXIT proforma for the User side of the T reference point or coincident S and T reference point of implementations conforming to EN 300 138-1 [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.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[1] EN 300 403-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".

[2] EN 300 138-1 (V1.3): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[3] EN 300 138-2 (V1.3): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

[4] EN 300 138-5 (V1.3): "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network".

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

[6] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".

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

[8] ISO/IEC 9646-4: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 4: Test realization".

[9] ISO/IEC 9646-5: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".

[10] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".

SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd10496-1709-4816-a351-cfe2849d4af5/sist-en-300-138-6-v1-4-5-2003

SIST EN 300 138-6 V1.4.5:2003

[11] CCITT Recommendation X.209 (1988): "Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)".

[12] EN 300 196-1: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

3 Definitions and abbreviations

3.1 Definitions

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

Abstract Test Suite (ATS): see ISO/IEC 9646-1 [5]

Implementation Under Test (IUT): see ISO/IEC 9646-1 [5]

Lower Tester (LT): see ISO/IEC 9646-1 [5]

Point Of Control And Observation (PCO): see ISO/IEC 9646-1 [5]

Protocol Implementation Conformance Statement (PICS): see ISO/IEC 9646-1 [5]

PICS proforma: see ISO/IEC 9646-1 [5]

Protocol Implementation Extra Information For Testing (PIXIT): see ISO/IEC 9646-1 [5]

PIXIT proforma: see ISO/IEC 9646-1 [5]

System Under Test (SUT): see ISO/IEC 9646-1 [5]

Upper Tester (UT): see ISO/IEC 9646-1 [5]

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-cfe2849d4af5/sist-en-300-138-6-v1-4-5-2003

SIST EN 300 138-6 V1.4.5:2003

3.2 Abbreviations

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

ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
BER	Basic Encoding Rules
CM	Co-ordination Message
CP	Co-ordination Point
CUG	Closed User Group
ExTS	Executable Test Suite
IA	Incoming Access
ICB	Incoming Calls Barred
IUT	Implementation Under Test
LT	Lower Tester
MOT	Means Of Testing
MTC	Main Test Component
OA	Outgoing Access
OCB	Outgoing Calls Barred
PCO	Point of Control and Observation
PCTR	Protocol Conformance Test Report
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PTC	Parallel Test Component
SUT	System Under Test
TP	Test Purpose
TTCN	Tree and Tabular Combined Notation
UDI	Unrestricted Digital Information
UT	Upper Tester

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-cfe2849d4af5/sist-en-300-138-6-v1.4.5-2003

4 Abstract Test Method (ATM)

4.1 Description of ATM used

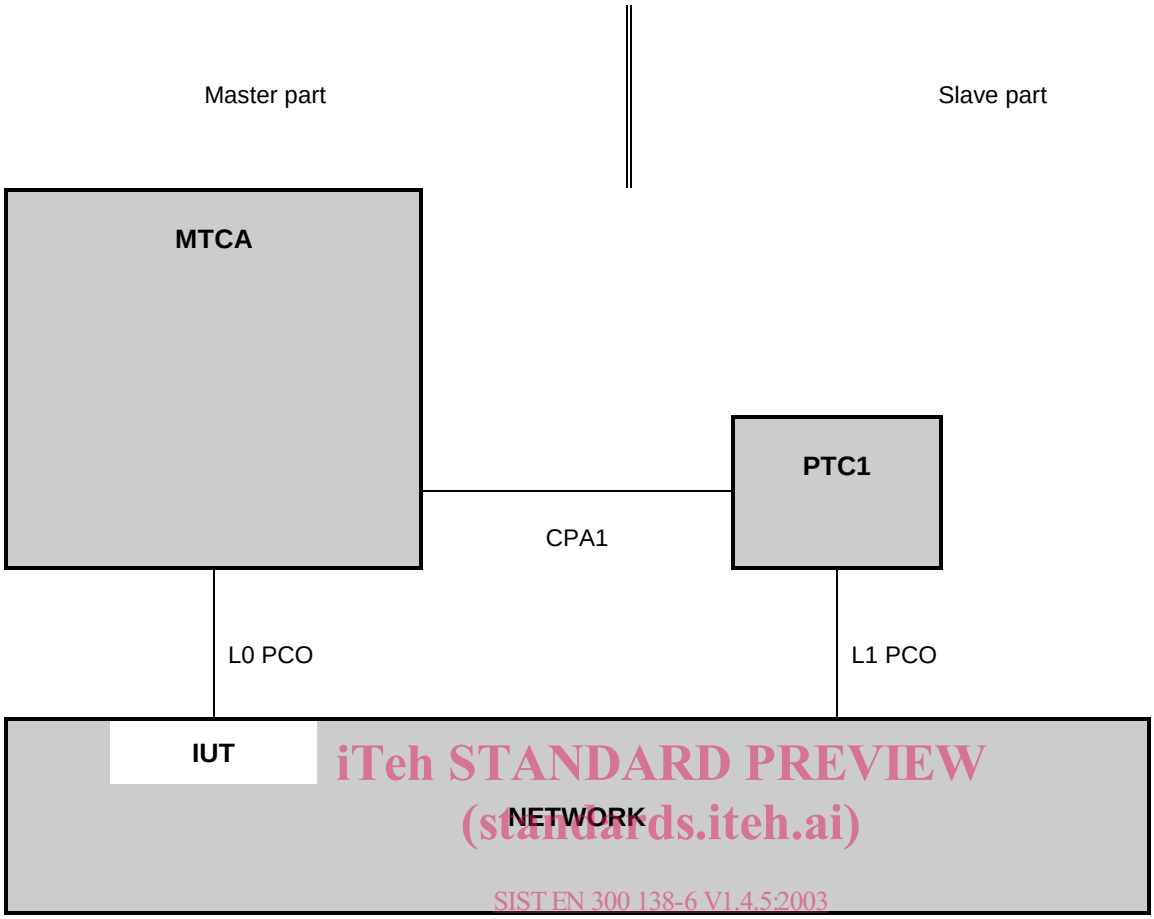
The requirement for testing the network IUT is to focus on the behaviour of the network IUT at the user-network interface where a T reference point or coincident S and T reference point applies. Thus the IUT is the network DSS1 protocol entity at a particular user-network interface and is not the whole network.

It is possible to specify an ATS based on a Single party (remote) test method for such an IUT. However, it is considered that an ATS based on such an approach is of limited use as the only way to specify IUT generated PDUs is to use the "implicit send" statement. Many users of such an ATS would replace the "implicit send" statements with descriptions of the behaviour at other interfaces.

An ATS based on a multi-party test method is considered to be more useful in that it is closer to how a real test suite would be constructed. Such a test method specifies behaviour at multiple network interfaces. One very important limitation here is that tests are focused on one particular interface. Thus the test system is made up one Main Test Component (MTC) and one or more Parallel Test Components (PTC), see figure 1.

SIST EN 300 138-6 V1.4.5:2003

4.1.1 Conventions for test components and PCOs



iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-cfe2849d4af5/sist-en-300-138-6-v1.4.5-2003

Figure 1: Multi-party test method

In a master/slave arrangement, the MTC is considered to be the master while the PTCs are the slaves. The "slave" testers are only an explicit description of how to deal with the "other" interfaces during the testing process, i.e. "how to make the IUT send the required message".

This means, in particular, that the verdict will only be assigned from the protocol aspects observed on the interface under test (i.e. by the "master" tester), as it would be observed by a terminal connected to this interface. A failure in the correlation between the protocol at the different interfaces to which the different testers are connected, i.e. in the mechanism of the functional service itself, will not cause a FAIL verdict. For instance, if the IUT fails to send a message on the tested interface after another interface has received the proper stimulus, the verdict will be INCONCLUSIVE.

The MTC MTCA has two functions in this configuration. Firstly, it has the MTC function of controlling the one or more PTCs. Thus it is responsible for starting the PTCs and afterwards co-ordinates activities by exchanging Co-ordination Messages (CM) with the PTCs. Secondly it is responsible for the behaviour of the Lower Tester (LT) at PCO L0.

A combination of the remote and multi-party test methods is applied. As can be seen from figure 1, several PCOs are used. All PCOs reside at the service access points between layers 2 and 3.

SIST EN 300 138-6 V1.4.5:2003

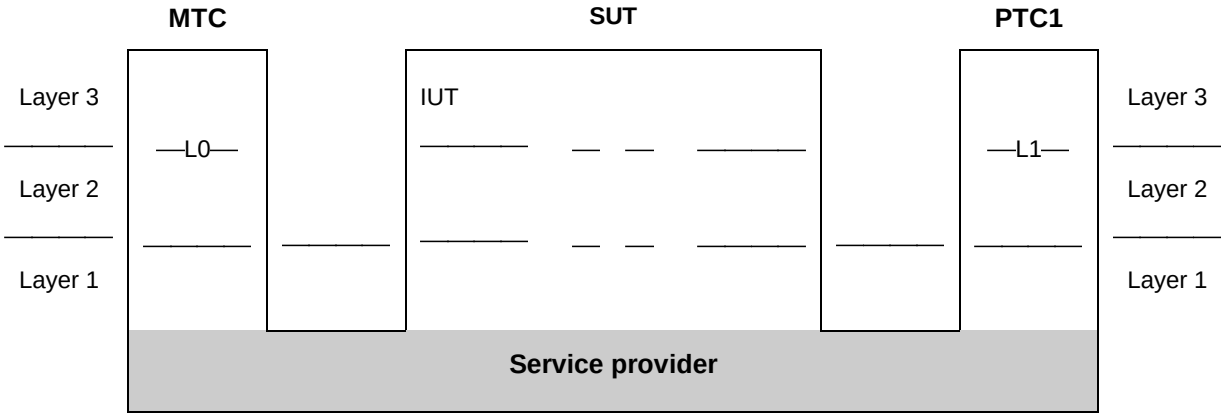


Figure 2: Combination of the remote and multi-party test methods

The MTC PCO is named "L0" ("L" for Lower). PCO L0 is used to control and observe the behaviour of the IUT and test case verdicts are assigned depending on the behaviour observed at this PCO. The PTC PTC1 uses PCO L1. This PCO is used to control and, in a limited way, observe the behaviour of the network equipment at interfaces other than the one under test. No verdicts are assigned at this PCO.

As stated in a previous paragraph, the non-receipt of network generated messages at L0, which are stimulated by events at the L1, will result in INCONCLUSIVE rather than FAIL verdicts being assigned.

4.1.2 Conventions for variables and parameters

iTeh STANDARD PREVIEW
(standards.iteh.ai)

MTCA

call reference	CREF1
B channel (basic)	bch_num1 (to PTC1)
channel nr (primary)	CH_NUM1
PCO L0	IPN0, LIPN0

SIST EN 300 138-6 V1.4.5:2003
https://standards.iteh.ai/catalog/standards/sist/dcd19496-1799-481f-a251-849d4af5/sist-en-300-138-6-v1-4-5-2003

PTC1

call reference	P1CREF
B channel (basic)	P1_bch_num
channel nr (primary)	P1_CH_NUM
PCO L1	IPN1, LIPN1

4.2 Alternative ATM

As stated in subclause 4.1, an ATS based on a single-party (remote) ATM is possible. Such an ATS may be generated from the one specified in the present document. The following general steps should be taken:

1) remove all PTC behaviour;

2) remove all CREATE statements;

3) replace CMs which are used to provoke PDUs at the MTC, with implicit send statements.

An example, showing the difference between the multi-party ATM and single-party ATM for a single test case, is given in tables 1 and 2.