

# ETSI TS 102 751 V1.1.1 (2008-03)

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*Technical Specification*

**Methods for Testing and Specification (MTS);  
Internet Protocol Testing (IPT):  
IPv4 to IPv6 Transitioning;  
Conformance Abstract Test Suite (ATS)  
and partial Protocol Implementation  
eXtra Information for Testing (PIXIT) proforma**

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**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

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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  
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## Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Methods for Testing and Specification (MTS).

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# 1 Scope

The present document specifies the Abstract Test Suite (ATS) for the IPv4 to IPv6 transitioning functions of the Internet Protocol, as defined in the specifications [11] through to [14]. The ATS is based on the requirements defined in the IPv6 requirements catalogue (TS 102 599 [2]) and the IPv6 test purposes (TS 102 518 [3]) and written according to the guidelines of TS 102 514 [1], ISO/IEC 9646-2 [5] and ETS 300 406 [9].

The objective of the present document is to provide a basis for conformance tests for IPv6 equipment giving a high probability of inter-operability between different manufacturer's IPv6 equipments.

Annex A provides the Tree and Tabular Combined Notation (TTCN-3) part of the ATS.

Annex B provides the Partial Protocol Implementation Extra Information for Testing (PIXIT) Proforma of the ATS.

Annex C provides the Protocol Conformance Test Report (PCTR) Proforma of the ATS.

NOTE: Annex B provides only the PIXIT items relevant for the IPv4 to IPv6 transitioning functions. It is therefore necessary to also fill the core PIXIT item in TS 102 516 [15] to gain all PIXIT values needed to run the mobility test campaign.

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# 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.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
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  - for informative references.

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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 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] ETSI TS 102 351: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Testing: Methodology and Framework".
- [2] ETSI TS 102 599: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv4 to IPV6 Transitioning; Requirements Catalogue".

- [3] ETSI TS 102 518: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv4 to IPv6 Transitioning; Conformance Test Suite Structure and Test Purposes (TSS&TP)".
- [4] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [5] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".
- [6] ISO/IEC 9646-4: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 4: Test realization".
- [7] 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".
- [8] ISO/IEC 9646-6: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".
- [9] ETSI ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [10] ETSI ES 201 873-1: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 1: TTCN-3 Core Language".
- [11] IETF RFC 2529: "Transmission of IPv6 over IPv4 Domains without Explicit Tunnels".
- [12] IETF RFC 2765: "Stateless IP/ICMP Translation Algorithm (SIIT)".
- [13] IETF RFC 3056: "Connection of IPv6 Domains via IPv4 Clouds".
- [14] IETF RFC 4213: "Basic Transition Mechanisms for IPv6 Hosts and Routers".
- [15] ETSI TS 102 516: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Core Protocol; Conformance Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma".

## 2.2 Informative references

Not applicable.

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# 3 Definitions and abbreviations

## 3.1 Definitions

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

**abstract test case:** Refer to ISO/IEC 9646-1 [4].

**Abstract Test Method (ATM):** Refer to ISO/IEC 9646-1 [4].

**Abstract Test Suite (ATS):** Refer to ISO/IEC 9646-1 [4].

**Implementation Under Test (IUT):** Refer to ISO/IEC 9646-1 [4].

**Lower Tester (LT):** Refer to ISO/IEC 9646-1 [4].

**Test Purpose (TP):** Refer to ISO/IEC 9646-1 [4].

## 3.2 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
ETS	Executable Test Suite
IETF	Internet Engineering Task Force
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IUT	Implementation Under Test
MOT	Means Of Testing
PCTR	Protocol Conformance Test Report
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PTC	Parallel Test Component
SUT	System Under Test
TC	Test Case
TP	Test Purpose
TSS	Test Suite Structure

## 4 Abstract Test Method (ATM)

This clause describes the ATM used to test the IPv4 to IPv6 transitioning functions as defined in the RFC specifications [11] through to [14]. The three following configurations have been developed to test the different types of IUT, 6to4-Nodes, 6to4-Routers, IP6/IP4\_Nodes and IPtranslators.

### 4.1 CF\_TRANS\_01

Used to test 6to4Router only.

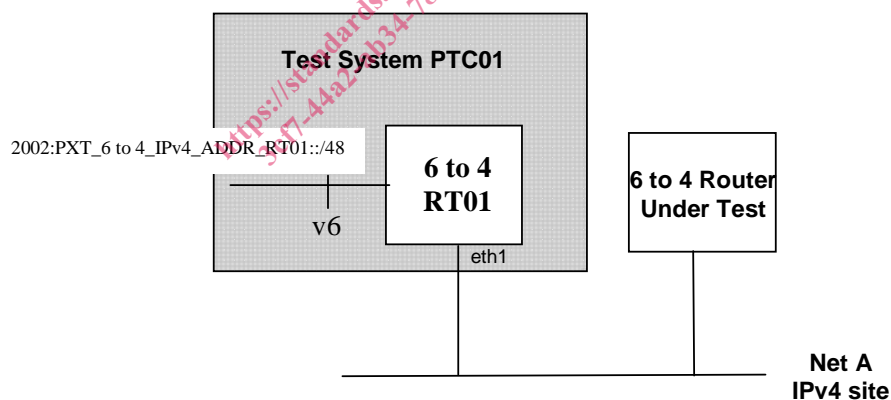


Figure 1: CF\_TRANS\_01



## 4.2 CF\_TRANS\_02

Used to test 6to4Router only.

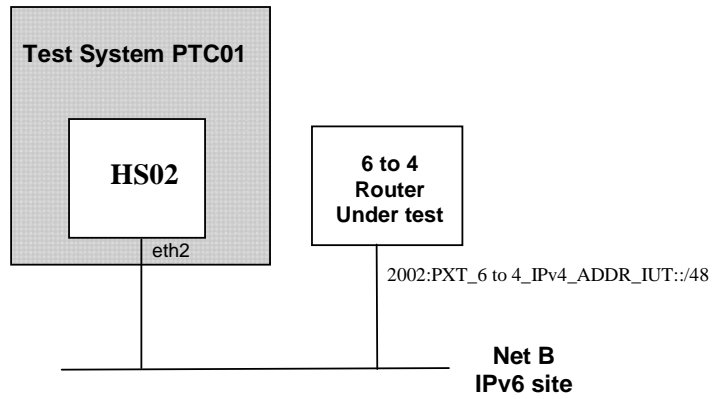


Figure 2: CF\_TRANS\_02

## 4.3 CF\_TRANS\_03

Used to test 6to4Router only.

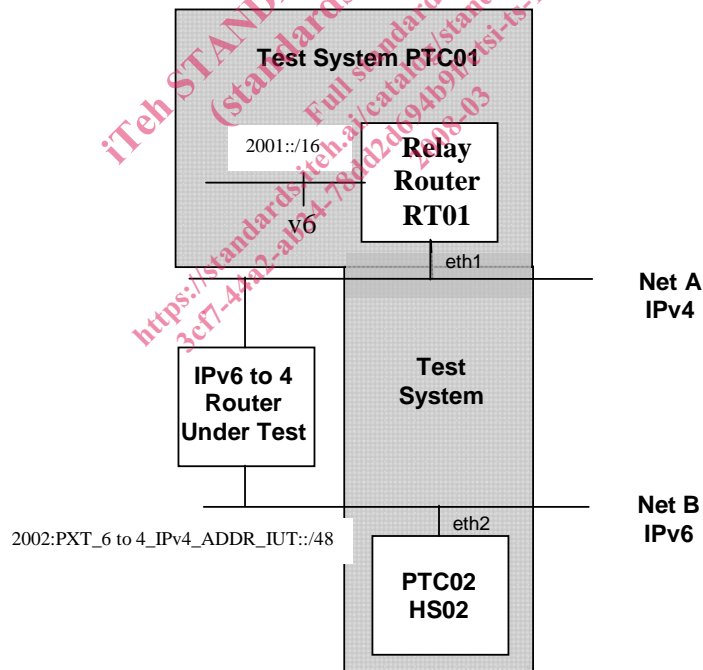


Figure 3: CF\_TRANS\_03

## 4.4 CF\_TRANS\_04

Used to test SIIT translator only.

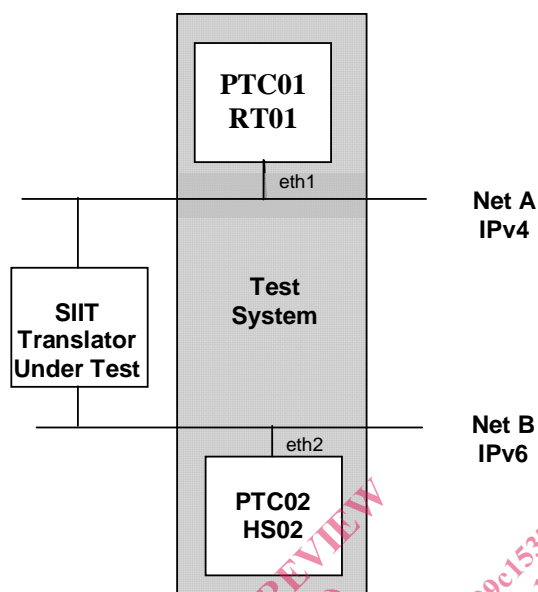


Figure 4

## 4.5 CF\_TRANS\_05

Used to test 6over4Nodes.

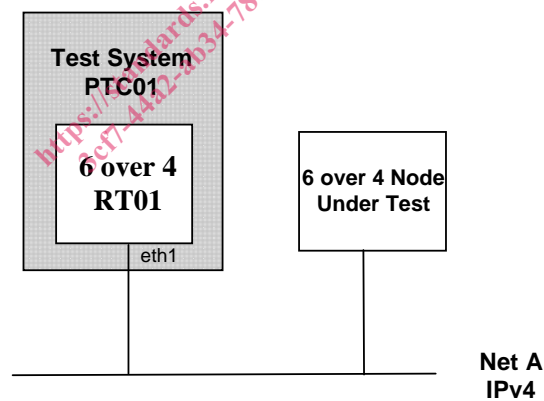


Figure 5: CF\_TRANS\_05