



ETSI
TECHNICAL
REPORT

ETR 040

June 1992

Source: ETSI TC-ATM
EWOS EGCT

Reference: DTR/ATM-2005
EWOS ETG 016

ICS: 33.020

Key words: Advanced Testing Methods, Profile test specifications

**Advanced Testing Methods (ATM);
Profile test specifications
and conformance test reports**

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Foreword

ETSI Technical Reports (ETRs) are informative documents resulting from studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature relating to the use of, or application of, ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or I-ETS.

This ETR has been produced by the Advanced Testing Methods (ATM) Technical Committee of the European Telecommunications Standards Institute (ETSI). More specifically, it is the result of a joint effort of experts contributing to ETSI TC-ATM and Project Team 5 of the Expert Group on Conformance Testing (EGCT) of the European Workshop for Open Systems (EWOS). The work has been carried out jointly by ETSI and EWOS under the European Commission (EC) funded Bon de Commande BC-IT-01-SI. Due to the similarity in objectives, ETSI TC-ATM and EWOS EGCT have agreed to issue common texts, with a few specifics, one per body. The EWOS Technical Guide (ETG) version is known as ETG 016.

This ETR/ETG is derived from Annex A of the EWOS/ETSI Project Team 5 report [1] which defines the OSI Conformance Testing Methodology and procedures in Europe.

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1 Scope

This ETR defines the concept of Profile Test Specifications (PTS). A PTS is the collection of test specification documents relating to a particular profile defined by the M-IT-02 [3] taxonomy and specified in a Functional Standard (FS).

This ETR specifies those components of a PTS which are submitted to the standardization process as additional parts of the FS where the profile itself is specified. Those components are the PTS-Summary (PTS-S) and the Profile Specific Test Specifications (PSTS). Other documents belonging to a PTS are existing Base Standard documents, or members of the Test Specification Library.

This ETR also specifies the requirements on Conformance Test Reports (SCTR and PCTR) proformas that are published as part of the PSTS.

2 References

For the purpose of this ETR the following references apply.

- [1] Project and Technical reports from EWOS/ETSI Project team 5, working on BC-IT-01-SI mandate (Oct 90).
- [2] M-IT-01: "Concept and structure of Functional Standards".
- [3] M-IT-02: "Directory of Functional Standards".
- [4] M-IT-03: "Certification of Information Technology Products".
- [5] M-IT-05: "Directory of private telecommunication network standards".
- [6] ISO/IEC 9646 (1991): "OSI Conformance Testing Methodology and Framework, Parts 1 to 5".
- [7] ISO/IEC TR 10000-1 (1990): "Framework and taxonomy of International Standard Profiles - Part 1 : Framework".
- [8] ISO/IEC TR 10000-2 (1990): "Framework and taxonomy of International Standard Profiles - Part 2 : Taxonomy of profiles".
- [9] EN 45001 (1989): "General criteria for the operation of testing laboratories".
- [10] EN 45002: "General criteria for the assessment of testing laboratories".
- [11] EN 45003: "General criteria for laboratory accreditation bodies".
- [12] ISO/IEC JTC1/SC21/N6160 (May 1991): "Catalogue of PICS proforma notations".
- [13] ISO/IEC CD-9646-6 (May 1991): "Protocol Profile Test Specification".
- [14] ISO/IEC 9646-1 (PDAM) (May 1991): "Multi-party testing".
- [15] ISO/IEC JTC1/SC21/N6174 (May 1991): "PDAM1 to ISO/IEC 9646-2 on Profile Conformance Testing Methodology".
- [16] ISO/IEC JTC1/SC21/N6175 (May 1991): "PDAM1 to ISO/IEC 9646-4 on Profile Conformance Testing Methodology".
- [17] ISO/IEC JTC1/SC21/N6176 (May 1991): "PDAM1 to ISO/IEC 9646-5 on Profile Conformance Testing Methodology".

3 Definitions

For the purpose of this ETR, all the definitions in ISO/IEC 9646 [6] and its amendments ([13] to [17]) apply, as well as definitions in ISO/IEC 10000-1 [7], "Framework and taxonomy of International Standard Profiles - Part 1: Framework".

In addition, the following definitions apply:

Profile Test Specification (PTS): a PTS is the collection of test specification documents relating to a particular Profile documented in a FS.

Profile Test Specification Summary (PTS-S): this document provides references to the various test specification documents designed to test a profile.

A Test Specification Library: is a repository for the test specification material common to a number of different profiles, not yet contained in any base standard test specification, referenced by the PTS-S.

4 Symbols and abbreviations

For the purpose of this ETR, all the symbols and abbreviations defined in ISO/IEC 9646 [6] and its amendments ([13] to [17]) as well as those in ISO/IEC TR 10000-1 [7] apply.

ACSE:	Association Control Service Element
ATM:	Abstract Test Method/Advanced Testing Methods
ATS:	Abstract Test Suite
EN/ENV:	European Standard/European pre-Standard
ETG:	EWOS Technical Guide
ETSI:	European Telecommunications Standards Institute
ETS:	European Telecommunication Standard
ETR:	ETSI Technical Report
ICS:	Implementation Conformance Statement (of a Protocol or Profile)
I-ETS:	Interim European Telecommunication Standard
IPRL:	ISP Requirement List (NOTE)
ISP:	International Standardized Profile
ISPICS:	ISP Implementation Conformance Statement (NOTE)
IUT:	Implementation Under Test
IXIT:	Implementation eXtra Information for Testing (of a Protocol or Profile)
MOT:	Means of Testing
OSI:	Open Systems Interconnection
PCO:	Point of Control and Observation
PCTR:	Protocol Conformance Test Report

PETS:	Parameterized Executable Test Suite
PICS:	Protocol Implementation Conformance Statement
PIXIT:	Protocol Implementation eXtra Information for Testing
PSTS:	Profile Specific Test Specification
PTS:	Profile Test Specification
RL:	Requirement List (of a profile)
SCS:	System Conformance Statement
SCTR:	System Conformance Test Report
SUT:	System Under Test
TMP:	Test Management Protocol
TSS & TP:	Test Suite Structure and Test Purpose

NOTE: This applies only to International Standardized Profiles (ISPs).

5 Profile Test Specifications (PTS)

5.1 Role and composition of PTS

Testing conformance of an implementation to a profile consists in testing conformance to each of the base protocol standards, on the basis of which the profile is defined. Conformance testing methodology is based on methodology and test specifications defined for the base standards. The concepts of Abstract Test Suites (ATS) and Implementation Conformance Statement (ICS) of the base standards, plus the additions for profiles such as Requirement Lists (RL), apply.

The Profile Test Specification (PTS) is a generic term to define the set of all conformance testing documents to be used for the test of conformance to this profile.

The composition of a PTS is specified in a standardized document called a PTS-Summary. The PTS-Summary is a part of the PTS.

The development of PTS is based on the existence of conformance testing standards for each base protocol, plus the development of additional components, which are either complements to existing documents, or new components due to the profile definition.

The PTS-Summary does not contain the full text of any test component, but only references to them. It refers to:

- 1) a number of stable base protocol Conformance Testing standards and documents, already published by ISO, ISO/IEC or CCITT (see Clause 9, Conformance testing standard of base protocols);
- 2) the Library of Test Specifications defined by the PT5 report [1], which is a repository for conformance testing documents put in common for the development of various PTSs (see Clause 8, Library of test specifications);
- 3) specific material created for a specific profile or a family of related profiles called Profile Specific Test Specifications (PSTS) (See Clause 7, Profile Specific Test Specifications (PSTS)).

The PTS-Summary is used to build a PTS for the profile, i.e. to gather first, then to exploit the set of documents it references, these documents belonging to any of the three families of documents mentioned above.

The users of the PTS are:

- the test realisers who develop executable test suites for the profile, in the context of a Means of Testing (MOT);
- the test laboratories which carry out the conformance assessment of an implementation of the profile;
- the clients of the test laboratories who have to know the specifications by which their profile implementation will be tested.

5.2 Publication of PTSs in a Functional Standard

The PTS is not published as a whole in a single document. It is a collection of documents that the user shall gather, guided by the PTS-Summary.

Only the parts which are specifically standardized for a profile, i.e.:

- the PTS-Summary;
- the PSTS;

are published in separate parts of the FS.

The term "Functional Standard" (FS) is used in Europe to denote a document which defines one or more profiles, defined by M-IT-02 [3] taxonomy; it is published as a CEN/CENELEC EN/ENV or as an ETSI ETS/I-ETS, and is referenced by a document number.

If it contains only one profile, the FS has three parts:

- Part 1 contains the specification of the M-IT-02 [3] profile, and its Requirements List (RL);
- Part 2 contains the PTS-Summary;
- Part 3 contains the Profile Specific Testing Specifications (PSTSs), which is optional, depending on the existence of specific material.

If the FS is multi-profile;

- each profile is specified in a separate part;
- each PTS-Summary is specified in another separate part;
- the PSTSs are published in separate parts, but can be merged into fewer parts than the number of profiles.

For example, a FS for m profiles shall have parts 1 to m to define the profiles (and profile-RLs), parts $m+1$ to $2m$ to define the PTS-Summary, and $2m+1$ to $3m$ (or less in case of grouping) for the PSTS.

Figure 1 shows the different parts of the FS and introduces the concept of PTS.

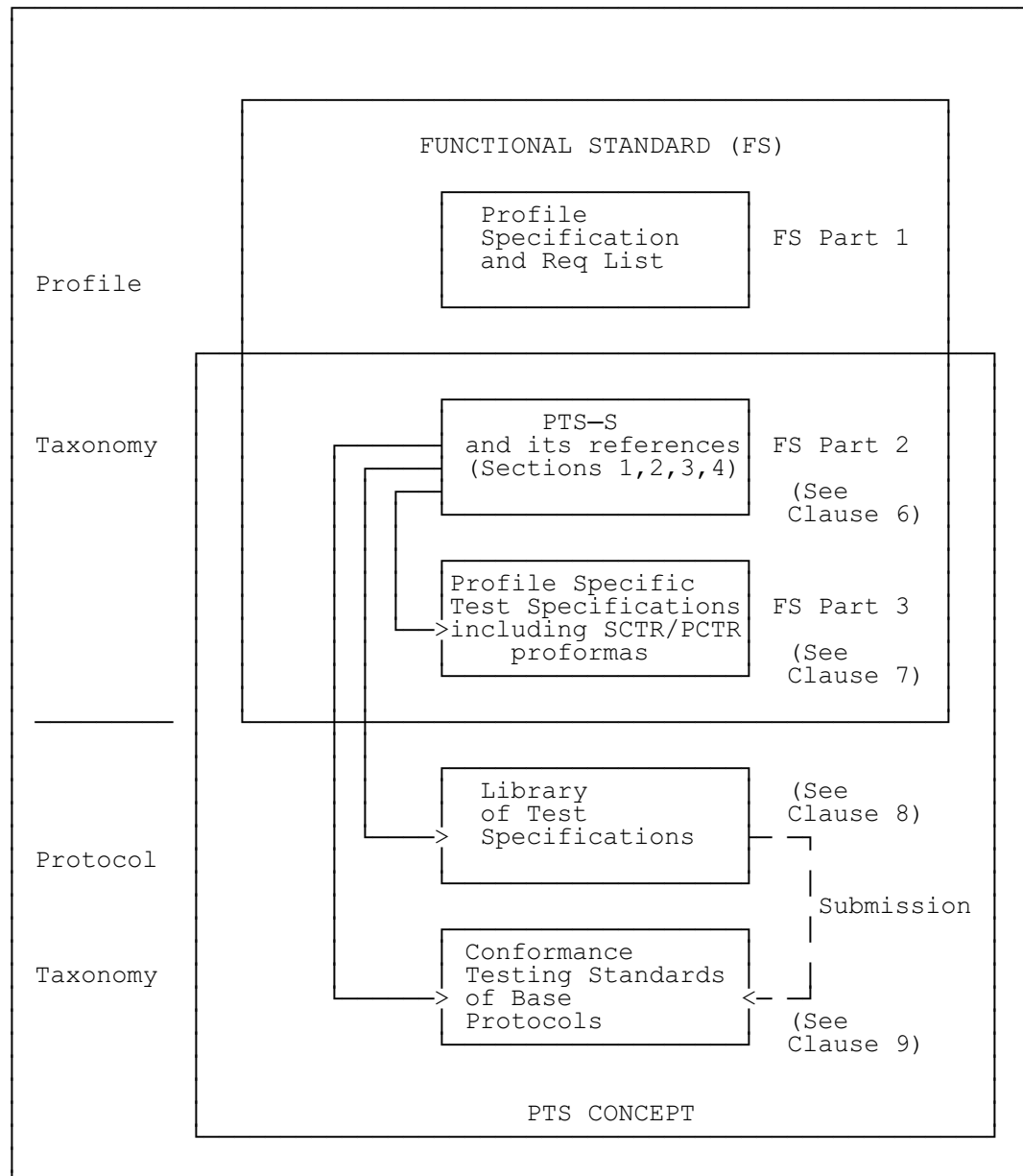


Figure 1: Functional Standard and its Test Specifications

6 The Profile Test Specifications-Summary

6.1 General

A PTS is a **Normative summary of the PTS**. It is to be published as a part of a FS, and there are as many PTS-Summaries as there are profiles in the FS. This Clause and figure 2 provide a PTS-Summary proforma.

Being normative, a PTS-Summary contains a conformance clause, similar to that of an ATS conformance clause for a protocol.

A PTS-Summary references the different PTS components which belong to either:

- the PSTS, components designed specifically for the test of this profile, or
- the Test Specification Library.

The PTS-Summary shall reference Test Suite Structure (TSS), Test Purpose (TP), one or more ATS and possibly the Test Management Protocol (TMP), contained in this library, or

- base protocol conformance testing standards.

The PTS-Summary shall reference TSS, TP, one or more ATS and possibly the TMP, contained in the base standard.

6.2 Components of a PTS-Summary

The references listed in a PTS-Summary are described below. They are of four types, each one making up a different section or sub-section.

- 1) PTS-Summary Section 1 which applies to the profile and the PTS as a whole (see subclause 6.3).
- 2) PTS-Summary Section 2 and sub-section 2.N which apply to each of the N protocols defined in the profile (see subclauses 6.4 and 6.5).

PTS-Summary sub-section 2.N.m which applies to a specific ATS m for a given Abstract Test Method of protocol N comprising the profile (see subclause 6.6).
- 3) PTS-Summary Section 3 which refers to material specific to the profile (see subclause 6.7).
- 4) PTS-Summary Section 4 which contains the conformance clause (see subclause 6.8).

Figure 2 is an example of a completed PTS-Summary proforma, with the various indications for the different sections.

Annex A gives the PTS-Summary proforma itself, to be reproduced and filled up by the specifier of the PTS.

6.3 <PTS-Summary Section 1>: Profile identification - General

This Section 1 of the PTS-Summary contains general information relative to the profile, in particular:

- the profile ID, in terms of M-IT-02 [3] identification;
- the FS identifier, to which the profile belongs, which also indicates its status in terms of ED, ETS, ENV or EN reference number;
- within the FS, the identifiers of profile, PTS-Summary and PSTS;
- the profile Requirement List (RL) reference.

The profile RL presents the general options of the profile and gives a list of the standards selected and combined. It also refers to the Protocol Implementation Conformance Statement (PICS) proforma of the related base standards.

If the profile defines restrictions on the conformance requirements of some base standards, the profile RL documents these constraints which are necessary to achieve the purpose of the profile.

- RL and PICS notation and semantics are given in the PICS catalogue notation, see ISO/IEC JTC1/SC21/N6160 [12]. This subject is still under study;
- the Profile Specific Implementation Conformance Statement (ICS) which gives the specific options of the profile in addition to the ones included in the profile RL;

- the Profile Specific IXIT proforma reference, indicating the partial PIXIT proforma of this profile. It lists questions to be answered by the client about specific test information for this profile;
- the profile System Conformance Statement (SCS) proforma, if one is built for the profile. SCS is defined in ISO/IEC 9646 [6];
- the profile System Conformance Test Report (SCTR) proforma.

The SCTR proforma, when completed after the test to become the SCTR, provides administrative information about the Test Laboratory and Client, describes the System Under Test (SUT) and summarises the test results for each protocol comprising the profile implemented in the SUT.

NOTE: The SCTR proforma is described in Annex B of this document.

6.4 <PTS-Summary Section 2 >: Test specifications related to the protocols

A general introduction may illustrate how the protocols making up the profile shall be tested, in which order if applicable.

The following figure 2 gives an example of PTS-Summary. This example is consistent with Annex A, but contains dummy information.

PTS-Summary SECTION 1 - PROFILE IDENTIFICATION - GENERAL					1 of 6
Profile ID (M-IT-02 nr)	T/B432				
Profile version	as per M-IT-02 version 5, May 1991				
references	requir	avail.	document nr	section	comments
FUNCTIONAL STANDARD	M	Y	EN 41 xxx	3 parts	
Profile specification	M	Y	EN 41 xxx	part 1	
version	M	completed - available thru CEN members			
PTS-Summary specification	M	Y	prENV 41 xxx	part 2	
version	M	draft (this document)			
PSTS specification	M	Y	prENV 41 xxx	part 3	
version	M	draft (document ED xyz)			
Profile RL reference	M	Y		
Profile specific ICS proforma	M	Y		
Profile specific IXIT proforma	M	Y		
Profile SCS proforma	M	Y		
Profile SCTR proforma	M	Y		
other comments:					
<Requirement values are: M for mandatory to provide a reference in the PTS-Summary 0 for optional to provide a reference in the PTS-Summary C1 for mandatory to provide a reference if item exists C2 for mandatory if Coordinated Method is used C3 for not required if common identifiers are used. <Availability values are YES, not applicable, NO (comment, please)>					

Figure 2: Example of PTS-Summary

PTS-Summary SECTION 2 - TEST SPECIFICATIONS RELATED TO THE PROTOCOLS	2 of 6										
<p><provide general information and methodology guidance first></p> <p>GENERAL:</p> <p>Abstract Test Suites available for the three protocols allow to test a profile implementation in the incremental manner, first DSE for protocol ONE, then DSE for protocol TWO, last DS for protocol THREE. For protocol 2, a CS suite is also available.</p>											
<p><provide a summary of section 2, with a subsection 2.n for each protocol of the profile - at least one></p> <table><tbody><tr><td data-bbox="284 698 954 728">Subsection 2.1 for protocol ONE</td><td data-bbox="962 698 1299 728">see page 3/5 and 5/5</td></tr><tr><td data-bbox="284 741 954 770">Subsection 2.2 for protocol TWO</td><td data-bbox="962 741 1299 770">see page (not provided)</td></tr><tr><td data-bbox="284 784 954 813">Subsection 2.3 for protocol THREE</td><td data-bbox="962 784 1299 813">see page (not provided)</td></tr><tr><td data-bbox="284 826 954 855">Subsection 2.4 for protocol (n.a)</td><td data-bbox="962 826 1299 855">see page</td></tr><tr><td data-bbox="284 869 954 898">Subsection 2.5 for protocol (n.a)</td><td data-bbox="962 869 1299 898">see page</td></tr></tbody></table>		Subsection 2.1 for protocol ONE	see page 3/5 and 5/5	Subsection 2.2 for protocol TWO	see page (not provided)	Subsection 2.3 for protocol THREE	see page (not provided)	Subsection 2.4 for protocol (n.a)	see page	Subsection 2.5 for protocol (n.a)	see page
Subsection 2.1 for protocol ONE	see page 3/5 and 5/5										
Subsection 2.2 for protocol TWO	see page (not provided)										
Subsection 2.3 for protocol THREE	see page (not provided)										
Subsection 2.4 for protocol (n.a)	see page										
Subsection 2.5 for protocol (n.a)	see page										

Figure 2: Example of PTS-Summary (continued)

SUBSECTION 2.1 - USE OF CONFORMANCE TESTING STANDARDS FOR PROTOCOL ONE					3 of 6
references	requirement	availability	document number(s)	clause or part	version
Protocol identification	M	Y	ISO/IEC 1010n	part 1	IS:1988
PICS proforma (and level)	M	Y	ISO/IEC 1010n	part 2	IS:1989
Base Conformance Testing Standard for this protocol	M	Y	ISO/IEC 1020m	parts 1, 2, 3	see each part
Reference of TSS and TP	M	Y	ISO/IEC 1020m	part 1	IS:1990
Technical corrigenda	C1	Y	PSTS clause 7.1		
Additional TSS and TP	C1	Y	PSTS clause 7.2		
<document first ATS in a subsection 2.n.1 as follows:>					
SUBSECTION 2.1.1 USE OF ATS XXXX (DSE) FOR PROTOCOL 1 IN THIS PROFILE					
Component	requir	avail.	document nr	section	comment
Protocol identification	M	Y	ISO/IEC 1010n	part 1	
ATS base standard	M	Y	ISO/IEC 1020m	part 3	
version	M	(DIS level by 09/91)			
abstract test method	M	Distributed Single Embedded			
Test Mgt Protocol	C2	n.a.			
Abstract Selection Rules	M	Y	CTS/mmm/fff/		
ATS to Test Purpose Map	C3	Y	CTS/jjj/uuu/		
Partial PIXIT proforma	M	Y	ISO 1020m p.3	Annex 2	
PCTR proforma	M	Y	CTS/jjj/ttt/		
ATS technical corrigenda	C1	Y	PSTS, clause 8.1		
ATS addit'l test cases	C1	Y	PSTS, clause 8.2		
Untestable test purposes	C1	Y	PSTS, clause 8.3		
<If other ATS are available, fill other subsections 2.n.m; if not, fill section 2.n for next protocol; if all protocols are dealt with, fill section 3.>					

Figure 2: Example of PTS-Summary (continued)

SUBSECTION 2.1 - USE OF CONFORMANCE TESTING STANDARDS FOR PROTOCOL 1					4 of 6
(continued)					
<if other ATS are available for the same protocol, fill this additional proforma, once for each>					
SUBSECTION 2.1.2 USE OF ATS XXXX (CS) FOR PROTOCOL 1 IN THIS PROFILE					
Component	requir	avail.	document nr	section	comment
Protocol identification	M	Y	ISO/IEC 1010n	part 1	
ATS base standard	M	Y	ISO/IEC 1020m	part 2	
version	M	IS:1991			
Abstract test method	M	Coordinated Single			
Test Mgt Protocol	C2	Y (CS)	ISO/IEC 1020m	part 4	
Abstract Selection Rules	M	Y	CTS/mmm/yyy/		
ATS to Test Purpose Map	C3	Y	CTS/jjj/uuu/		
Partial PIXIT proforma	M	Y	ISO 1020m p.2	Annex 2	
PCTR proforma	M	Y	CTS/jjj/ttt/		
ATS technical corrigenda	C1	Y	PSTS, clause 9.1		
ATS addit'l test cases	C1	Y	PSTS, clause 9.2		
Untestable test purposes	C1	N	n.a.		

PTS-Summary SECTION 3-TEST SPECIFICATIONS NOT RELATED TO A GIVEN PROTOCOL				5 of 6
Component	requir	avail.	reference in PSTS	
Addition to test structure	C1	Y	PSTS, clause 4	
Additional test purposes	C1	Y	PSTS, clause 5	
Additional test cases	C1	Y	PSTS, clause 6	
<other comments and references>				

PTS-Summary SECTION 4 - CONFORMANCE CLAUSE			6 of 6
<p>The test realizer of a Means Of Testing against this Profile shall comply with the requirements of EN 29646-4 (ISO/IEC 9646-4). In particular, the realization of executable test suites shall be based on the prescriptions of this PTS-Summary, regarding the use of the test specifications referenced for each protocol, modified or augmented by the Profile Specific Test Specifications (PSTS), published in part .. of this Functional Standard.</p> <p>Test laboratories running conformance test services according to this PTS-S shall comply with EN29646-5 and -6 (ISO/IEC 9646-5 and -6).</p>			

Figure 2: Example of PTS-Summary (concluded)

6.5 <PTS-Summary Subsection 2.n>: Use of conformance testing standards for protocol N

For each of the 'N' protocols of the profile, the PTS-Summary contains a section 2.N. referencing each of the protocol components.

In the case of protocols which have high interdependencies and which shall be tested together, this subclause may refer to a set of interrelated protocols.

References listed for a protocol are:

- identification of the protocol standard. The document number identifies also the status, like an ISO standard.
- PICS proforma reference.
The PICS proforma is provided, usually as either an integral part or an annex to the base standard of a protocol, and has the same reference number as the protocol.

In the absence of such a document, the Test Specification Project Team is expected to derive a suitable PICS proforma, which will be submitted to the relevant base standard organization for progression to standardization. In the meantime, it is placed in a common library to share its use with other possible project teams.

NOTE: In the case of interrelated protocols, more than one PICS may be referenced.

- TSS and TP reference section.
This section is the TSS & TP document, part of Conformance Testing standards for that protocol, and contains references to:
 - * TSS & TP base standard.
TSS and TP define the overall structure and scope of the test suite for the base standard. Each ATS created for the different test methods of that protocol shall comply with this document.

This reference also indicates the status of the TSS & TP, part of the conformance testing standard of the base standard;
 - * additional TSS and TP for technical corrigenda of the base standard.
A list of the TSS and TP identified as a result of a defect in the base standard is included, and these TSS and TP appear in the PSTS;
 - * additional TSS and TP in the base standard due to deficiencies in the test coverage of the base standard.

It is a reference to a document defining any additional test purposes that are required to test the protocol in the profile environment and which are not covered by the base standard. The document also describes how these additional TSS and TPs fit into the structure of the base standard test suite. These TSS and TP appear in the PSTS.

In the case where no base standard TSS&TP exists, reference is made to the overall TSS&TP of the base standard designed for this profile environment. These TSS and TP appear in the common library.

6.6 <PTS-Summary Subsection 2.n.m>: Use of an ATS for protocol N testing

The PTS-Summary contains, for each of the 'm' ATS available for the test of a given 'N' protocol, references to the standardised Conformance Testing standard containing the ATS. This is the largest and most technically complex part of the PTS. The requirements to be met by the Conformance Testing standard are specified in ISO 9646 [6], Part 2.

This part applicable to each ATS has the following references:

- ATS base standard identification, which is a part of the Conformance Testing standard.

NOTE 1: In the case of interrelated protocols, a single ATS may test the relationship between these protocols.

NOTE 2: It is recognised that during the development and progression of a PTS, it may be necessary to make reference to interim versions of standards under development, as illustrated by the examples provided in figure 2.

However, it should be noted that in order for a PTS-Summary to be ratified by CEN/CENELEC, all such referenced documents shall themselves have the status of standards. If the material to be referenced (e.g. an ISO or CCITT draft) has not progressed to the required stage, then the material itself shall be included in the PSTS and, therefore, be adopted as part of the standardized material.

When the relevant ISO Standard or CCITT Recommendation has been ratified, a new version of the PTS-Summary can be produced with the relevant material deleted from the PSTS and the appropriate references to the ISO Standard or CCITT Recommendation being inserted in the PTS-Summary.

- Type of Abstract Test Method used for the ATS:
- Additional Test Cases for technical corrigenda of the base ATS. These tests are included in the PSTS.
- Additional Test Cases to increase test coverage Reference is made to a document defining any additional test cases that are required to test the protocol in the profile environment and which are not covered by the base standard. These tests are included in the PSTS.
- Untestable Test Purposes for this test method.
- Protocol Conformance Test Report (PCTR) proforma. It provides, when completed after the test to become a PCTR, for each protocol implementation tested (IUT), detailed information about the IUT configuration, test method and environment and the test results for every test case executed. Included in the PCTR are a list of the Test Purposes and a list of the Test Cases retained for the test of the profile. This corresponds to the first test selection made in the different ATSs, independent of the testing methods, for each protocol of the profile to be tested, the second selection being made according to the IUT under test, which takes into account the testing method of each protocol.

NOTE: The PCTR proforma is described in Annex B of this ETR.

The ATS has references to its components, which appear in this PTS-Summary, and which are listed in Clause 9.

6.7 <PTS-Summary Section 3>: Test specifications not related to a single protocol

The PTS-Summary refers here to the profile specifics components, if any, which are:

- insertion of the additional test cases in the TSS (modification of existing test suites or creation of an additional test suite);
- additional Test Purposes specific for the profile(s);
- additional Test Cases specific for this profile(s).

These components are included in the PSTS.

6.8 <PTS-Summary Section 4>: Conformance clause

The last section of a PTS-Summary contains a conformance clause.

One shall consider that a PTS-Summary contains a set of requirements on how to build a Means of Testing (MOT) for the profile, starting from reference test specifications and possibly modifying them. These requirements shall be enforced by a conformance clause, similar to the conformance clause of an ATS for a base protocol. Due reference to permanent requirements of ISO/IEC 9646 [6] (relevant parts (EN 29646) also included).

Annex A provides a text for a conformance Clause in Section 4 of the PTS-Summary proforma.

7 Profile Specific Test Specifications (PSTS)

PSTSs are an integral part of the FS, specially developed for a given profile, and published as part of the PTS to be submitted for standardization.

The material specifically created for the profile includes specific SCTR and PCTR proformas, and for each or some protocols, new or modified test purposes or test cases, defect reports. It can be related to a single protocol of the profile(s), or to the profile as a whole ("multi-layer"). It can be related to one profile only or to several profiles of the FS.

Each component of the PSTS is a section or subsection and is referenced, as appropriate, from the PTS-Summary.

In the case of a single-profile FS, PSTS material shall be issued in one separate part (Part 3) of the FS.

For a multi-profile FS, there can be a PSTS part for each profile. If sensible, several PSTS can also be merged together in a single part of the FS.

It may happen that some of the PSTS material is first issued with the FS, then contributed to the Test Specifications Library to become common to several profiles. In this case, it is no longer published in the FS, but only referenced in the PTS-Summary.

8 Library of test specifications

The Test Specification Library contains Test Specification material which is common to a number of different profiles.

This is a set of multi-part EN(V)s which follow the taxonomy of the protocols and not the taxonomy of the profiles.

The library can be considered as comprising of two parts; the first is a temporary home for Test Specification material which will migrate to the Conformance Testing standard for the base protocol, when standardization gets approved; the second is a permanent repository for common material which is only relevant in a profile environment.

The most desirable reference is to the Conformance Testing standard, and if material exists at this level it should, preferably, be referenced.

The collection of this material into one repository avoids duplication of work in creating new material, simplifies maintenance and provides a point of consolidation for the submission of the material to the base standards committees.

A particularly relevant example is the collection of the embedded test suites for ACSE, Presentation and Session which will contain material common to a number of profiles.

9 Conformance testing standard of base protocols

Each Conformance Testing standard of a base protocol is an international standard at IS status or equivalent. PTS-Summary refers to the ATS part of this standard as a component of the PTS of the profile.

The ATS base standard reference has itself references to the following:

- the ATS proper;
- the ATS to Test Purpose mapping. This may be implicit but, in some cases, it may be explicit (e.g. remapping an existing Test Suite);
- the Abstract Test Suite Selection Rules (ASR): the Abstract Test Suite Selection Rules for the protocol, which, in combination with a completed PICS and the partial PIXIT proforma, define which Abstract Test Cases apply to the IUT;
- the list of the test cases retained in a given test suite of a protocol;
- Test Management Protocol (TMP), present or not according to the test method used;
- reference to the partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma of the corresponding base standard protocol.

10 Conformance test reports

10.1 ISO and European requirements

Conformance Test Reports for OSI FS shall fulfil the requirements of both the EN 45000 series (EN 45001 [9] and ISO 9646 [6] and its amendments ([13] to [17]) to meet the requirements for Certification.

Such Conformance Test Reports are a combination of two types of document:

- The System Conformance Test Report (SCTR), which provides administrative information about the Test Laboratory and Client, describes the SUT and summarises the test results for each protocol comprising the profile implemented in the SUT,

together with a set of:
- Protocol Conformance Test Reports (PCTRs), which provide, for each protocol implementation tested (IUT), detailed information about the IUT configuration, test method and environment and the test results for every test case executed.

10.2 EN 45000 requirements for SCTR and PCTR contents.

The content of SCTR and PCTR proformas are standardised in ISO 9646 [6] Part 5, Annexes A and B respectively and, together, these proforma fill most, but not all, of the requirements for Test Reports specified in EN 45001 [9]. The additional requirements are as follows:

- the accreditation status of the laboratory;
- a statement that the test results relate only to the items tested;
- a statement that the Test Report shall not be reproduced except in full without the approval of the Test Laboratory;
- the location where testing is carried out;
- the total number of pages in the Test Report;

- the signature and title of the person accepting technical responsibility for the report.

NOTE: This is not necessarily the Test Laboratory Manager, but it can be the responsibility of the Technical Supervisor.

10.3 Specification of conformance test reports proformas

Conformance Test Reports should fully comply with the requirements of both ISO 9646 [6] and EN 45001 [9]. Therefore, Conformance Test Reports should be based on the ISO 9646 [6] proforma, but these should be extended as specified below to comply with EN 45001 [9].

It is also recommended that to help ensure consistency of test reports, that each Test Specification contains a machine readable SCTR proforma and a PCTR proforma in each Conformance Testing standard referenced for a protocol, based on these requirements and guidance. "Generic" versions of SCTR and PCTR proformas will be available from EWOS EGCT and ETSI TC-ATM to assist in this process. However, only the contents of SCTR and PCTR proformas shall be mandatory requirements. Test laboratories may use test reports in any appropriate natural language or style of presentation, provided the correct content is preserved.

10.4 Extensions and modifications to SCTR proforma

The front cover of the SCTR shall state the total number of pages in the SCTR.

Section 1.6 shall state:

"The test results presented in this test report apply only to the particular SUT and component IUTs declared in sections 1.4 and 1.7 of this SCTR, as presented for test on the date(s) declared in section 1.4, and configured as declared in the relevant PIXIT annexed to each PCTR. This Test Report (SCTR and each referenced PCTR) shall not be reproduced except in full without the written permission of the Test Laboratory."

10.5 Extensions and modifications to PCTR proforma

The front cover of each PCTR shall state the total number of pages in the PCTR.

Section 1.1 shall be amended to state "Technical Supervisor" in addition to "Test Laboratory Manager" followed by an entry for "Position", before "Signature".

Laboratory identification.

Section 1.2 shall state the accreditation status of the laboratory.

Section 1.4 shall state:

"The limits and reservations stated in Section 1.6 of the referenced SCTR also apply to this PCTR.

The order of the test cases listed in Section 6 of this PCTR corresponds to the ordering of tests defined in the Test Specification referenced in Section 1.3. This does not indicate that the tests were executed in this order".

The relevant PIXIT and PICS for each IUT shall be appended to each PCTR.

In addition, Section 6 of the PCTR shall list all the tests defined in the relevant TSS & TP document (column a) then indicate the test case references for the tests applicable to a given testing method (column b).

These two columns allow the users of test reports to readily determine the scope of testing for the chosen test method in relation to the scope of testing for the protocol.

Annex A (normative): PTS-Summary generic proforma

NOTE: It is recommended to edit an actual PTS-Summary in landscape format.

PTS-Summary SECTION 1 - PROFILE IDENTIFICATION - GENERAL						1 of
Profile ID (M-IT-02 nr)						
Status of profile						
references	requir	avail.	document nr	section	comments	
FUNCTIONAL STANDARD	M					
Profile specification	M			part		
version	M					
PTS-Summary specification	M			part		
version	M					
PSTS specification	M			part		
version	M					
Profile RL reference	M					
Profile specific ICS proforma	M					
Profile specific IXIT proforma	M					
Profile SCS proforma	M					
Profile SCTR proforma	M					
other comments:						
<requirement values are: M for mandatory, 0 for optional, C1 for required if entity exists C2 for required if Coordinated Method is used C3 not required if common identifiers are used <availability values are YES, not applicable, NO (comment, please)>						

PTS-Summary SECTION 2 - TEST SPECIFICATIONS RELATED TO THE PROTOCOLS		2 of
<provide general information and methodology guidance first>		
<provide a summary of section 2, with a subsection 2.n for each protocol of the profile - at least one>		
Subsection 2.1 for protocol		see page
Subsection 2.2 for protocol		see page
Subsection 2.3 for protocol		see page
Subsection 2.4 for protocol		see page
Subsection 2.5 for protocol		see page

SUBSECTION 2.n - USE OF CONFORMANCE TESTING STANDARDS FOR PROTOCOL ...					of																																																																																				
references	requirement	availability	document number(s)	clause or part	version																																																																																				
Protocol identification	M			part:																																																																																					
PICS proforma (and level)	M			part:																																																																																					
Base Conformance Testing Standard for this protocol	M			parts:	see each part																																																																																				
Reference of TSS and TP	M																																																																																								
Technical corrigenda	C1																																																																																								
Additional TSS and TP	C1																																																																																								
<p><document first ATS in a subsection 2.n.1 as follows:></p> <table border="1"> <tr> <td colspan="6">SUBSECTION 2.n.1 USE OF ATS FOR PROTOCOL IN THIS PROFILE</td> </tr> <tr> <td>Component</td> <td>requir</td> <td>avail.</td> <td>document nr</td> <td>section</td> <td>comment</td> </tr> <tr> <td>Protocol identification</td> <td>M</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>ATS base standard</td> <td>M</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>version</td> <td>M</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>abstract test method</td> <td>M</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Test Mgt Protocol</td> <td>C2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Abstract Selection Rules</td> <td>M</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>ATS to Test Purpose Map</td> <td>C3</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Partial PIXIT proforma</td> <td>M</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PCTR proforma</td> <td>M</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>ATS technical corrigenda</td> <td>C1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>ATS addit'l test cases</td> <td>C1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Untestable test purposes</td> <td>C1</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p><If other ATS are available, fill other subsections 2.n.m; if not, fill section 2.n for next protocol; if all protocols are dealt with, fill section 3.></p>						SUBSECTION 2.n.1 USE OF ATS FOR PROTOCOL IN THIS PROFILE						Component	requir	avail.	document nr	section	comment	Protocol identification	M					ATS base standard	M					version	M					abstract test method	M					Test Mgt Protocol	C2					Abstract Selection Rules	M					ATS to Test Purpose Map	C3					Partial PIXIT proforma	M					PCTR proforma	M					ATS technical corrigenda	C1					ATS addit'l test cases	C1					Untestable test purposes	C1				
SUBSECTION 2.n.1 USE OF ATS FOR PROTOCOL IN THIS PROFILE																																																																																									
Component	requir	avail.	document nr	section	comment																																																																																				
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abstract test method	M																																																																																								
Test Mgt Protocol	C2																																																																																								
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PCTR proforma	M																																																																																								
ATS technical corrigenda	C1																																																																																								
ATS addit'l test cases	C1																																																																																								
Untestable test purposes	C1																																																																																								

SUBSECTION 2.n - USE OF CONFORMANCE TESTING STANDARDS FOR PROTOCOL ...					of
(continued)					
<if other ATS are available for the same protocol, fill this additional proforma, once for each>					
SUBSECTION 2.n.m USE OF ATS FOR PROTOCOL IN THIS PROFILE					
Component	requir	avail.	document nr	section	comment
Protocol identification	M				
ATS base standard	M				
version	M				
Abstract test method	M				
Test Mgt Protocol	C2				
Abstract Selection Rules	M				
ATS to Test Purpose Map	C3				
Partial PIXIT proforma	M				
PCTR proforma	M				
ATS technical corrigenda	C1				
ATS addit'l test cases	C1				
Untestable test purposes	C1				

PTS-Summary SECTION 3-TEST SPECIFICATIONS NOT RELATED TO A GIVEN PROTOCOL				of
Component	requir	avail.	reference in PSTS	
Addition to test structure	C1			
Additional test purposes	C1			
Additional test cases	C1			
<other comments and references>				

PTS-Summary SECTION 4 - CONFORMANCE CLAUSE				of
<p>The test realizer of a Means Of Testing against this Profile shall comply with the requirements of EN 29646-4 (ISO/IEC 9646-4). In particular, the realization of executable test suites shall be based on the prescriptions of this PTS-Summary, regarding the use of the test specifications referenced for each protocol, modified or augmented by the Profile Specific Test Specifications (PSTS), published in part .. of this Functional Standard.</p> <p>Test laboratories running conformance test services according to this PTS-S shall comply with EN29646-5 and -6 (ISO/IEC 9646-5 and -6).</p>				

Annex B (normative): Conformance test report generic proformas

B.1 System and protocol test report proformas

ISO 9646 [6] defines the basic format for System Conformance Test Report (SCTR) and Protocol Conformance Test Report (PCTR) proformas. In this annex, these basic formats have been adapted to provide generic proforma that meet the requirements of EN 45001 [9].

The proformas are also designed to meet the requirements of EWOS and ETSI for test reports relating to European Functional Standards and associated Profile Specific Test Specifications (see the Technical Report of EWOS/ETSI Project Team No. 5 - OSI Conformance Testing Methodology and Procedures for Europe [1]).

EWOS and ETSI Project Teams responsible for defining conformance test specifications should use these generic proforma to produce complete SCTR and PCTR proformas specific to the relevant FSTS.

In performing this task it should be noted that underlined text is intended as guidance for the production of a proforma tailored to the requirements of the FS/PSTS, and should not appear in the final proforma.

Similarly, text in **bold** is intended for the guidance of the test laboratory for the production of a Test Report for a specific SUT/IUT, and should be removed or replaced with information relevant to the test campaign in the final report.

Extensions/amendments to the relevant proforma in ISO 9646 [6], Part 5 are indicated by an "*" character to the left of the change.

* Name of Test Laboratory PCTR No. :
Page :
No. of Pages :

PROTOCOL CONFORMANCE TEST REPORT FOR Protocol Name

1 IDENTIFICATION SUMMARY

1.1 PROTOCOL CONFORMANCE TEST REPORT (PCTR)

PCTR Number:
PCTR Date:
Corresponding SCTR Number:
Corresponding SCTR Date:

* Technical Supervisor: **Name**
* Position: **Position in Laboratory**
* Signature: **Signature**

Test Laboratory Manager: **Name**
Signature: **Signature**

Test Laboratory:
Identification

* Relevant Accreditation Status: **Accreditation reference**

1.2 IUT

Name:
Version:
Protocol Standard/Recommendation: Reference
* PICS: Appended as Annex A
Previous PCTRs if any (optional): **References**

1.3 TESTING ENVIRONMENT

* PIXIT: Appended as Annex B
ATS Standard/Recommendation: Reference
Abstract Test Method: Method id
Means of Testing identification:
Protocol information (optional): **Timers, parameters, etc.**
Dates of testing:
Conformance Log reference(s): **Information required to obtain
conformance logs**
Retention Date of Log reference(s):

*	Name of Test Laboratory	PCTR No.	:
		Page	:
		No. of Pages	:

1.4 LIMITS AND RESERVATIONS

- * The test results presented in this test report apply only to the particular IUT declared in section 1.2 of this PCTR, for the functionality described in the relevant PICS, as presented for test on the date(s) declared in section 1.3 and configured as declared in the relevant PIXIT annexed to each PCTR. This Test Report (SCTR and each referenced PCTR) shall not be reproduced except in full without the written permission of the Test Laboratory and shall not be quoted out of context.
- * The order of the test cases listed in Section 6 of this PCTR correspond to the ordering of tests defined in the Test Specification referenced in Section 1.3. This does not indicate that the tests were executed in this order. The precise order of execution of test cases can be determined, if necessary, by reference to the conformance logs for the test campaign, and is summarised in section 7.2.

Additional information relevant to the technical contents or further use of the test report, or to the rights and obligations of the test laboratory and the client, may be given here. Such information may include restrictions on the publication of the report.

1.5 COMMENTS

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

*	Name of Test Laboratory	PCTR No.	:
		Page	:
		No. of Pages	:

2 IUT CONFORMANCE STATUS

This IUT has/has not shown by conformance assessment to be non-conforming to the specified protocol standard/recommendation.

Strike the appropriate words in this sentence; if the PICS for this IUT is consistent with the static conformance requirements (as specified in Section 3 of this report) and there are no "Fail" verdicts to be recorded (in Section 6) strike the word "has/", otherwise strike the words "/has not".

3 STATIC CONFORMANCE SUMMARY

The PICS for this IUT is/is not consistent with the static conformance requirements in the specified protocol standard/recommendation.

Strike the appropriate words in this sentence.

4 DYNAMIC CONFORMANCE SUMMARY

The test campaign did/did not reveal errors in the IUT.

Strike the appropriate words in this sentence; if there are no "Fail" verdicts to be recorded in Section 6 of this report, strike the word "did/", otherwise strike the words "/did not".

*** In addition, a summary of the results of groups of tests may be given. The detailed results of testing are provided in the table of Section 6. The summary may, for example, give totals for the number of passes, fails and inconclusives in each test group, and also allow the test laboratory to make observations on those results, such as " All the test concerned with segmented data transfer failed".**

5 STATIC CONFORMANCE REVIEW REPORT

If Section 3 indicates non-conformance, this section itemises the mismatches between the PICS and the static conformance requirements of the specified protocol standard/recommendation.

* Name of Test Laboratory PCTR No. :
Page :
No. of Pages :

6 TEST CAMPAIGN REPORT

This section shall use the following table which indicates both the test case selection that was performed by the test laboratory, and the results of testing. The order in which the abstract tests shall appear in this table is defined in the relevant ATS standard/recommendation.

* Columns a) and b) are to be completed in producing a PCTR for an ATS. Column (a) should list all the test purposes relevant to the protocol as defined in the FSTS. Column (b) should list all the test cases corresponding to the test purposes in column (a) that are relevant to the particular test method used. Therefore a separate PCTR proforma is required for each test method for which an ATS is defined. Sub-structuring of the table should reflect the structure of the ATS. If Test Group Objectives are used in the ATS they should be specified in the relevant places in the table.

* The test laboratory is required to complete the remaining columns for a test campaign as explained in the following introductory notes.

*

This section records, for each test purpose/test case referenced by the FSTS for this protocol, the following information:-

Test Purpose:

The Test Purpose identifiers referenced by the FSTS for the protocol;

ATS Ref. for Method:

The corresponding Abstract Test Case identifiers referenced by the FSTS for the protocol;

Selected by PICS/PIXIT?:

Indicates whether a test case has been selected for execution against the IUT identified in section 1.2 according to the analysis of the information in the PICS and PIXIT for the IUT appended as Annexes A and B respectively. If a test case is not selected on the basis of the PIXIT then the test laboratory must indicate why, by reference to the relevant PIXIT clause.

Run?: Indicates whether or not the test was run to completion. Permitted entries in this column are as follows:-

Y: Test was run to completion;

AE: Test not run due to Abstract Test Case error, or, withdrawn from ATS;

EE: Test not run due to Executable Test Case error, or, withdrawn from ETS;

AT: Abnormal Test Case termination occurred;

NI: Test not implemented in the Means of Testing used for the conformance assessment (see 1.3).

Verdict:

Records the verdict (Pass/Fail/Inconclusive) assigned to each test case run to completion, as defined in ISO 9646 [6], Part 1.

Observations:

Provides a reference to additional information relevant to the test presented in section 7.1.

* Name of Test Laboratory PCTR No. :
Page :
No. of Pages :

*

Test Purpose	ATS Ref. for Method	Selected by PICS/PIXIT?	Run?	Verdict	Observations
a)	b)				

* Name of Test Laboratory PCTR No. :
Page :
No. of Pages :

7 Observations

Additional information relevant to the technical content of the PCTR may be given here.

The order of test case execution may be listed here.

History

Document history	
June 1992	First Edition
March 1996	Converted into Adobe Acrobat Portable Document Format (PDF)