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End-to-end protocol tests  
(Interconnection capability testing)**

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## Foreword

This European Telecommunication Standard (ETS) was produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

The text provides detailed conformance tests for equipment offering group 4 class 1 functionality and is based upon CCITT Recommendation T.64 [1] and ISO 9646 Parts 1 [2] and 2 [3].

This ETS is also closely related to a series of other ETSs which are given in clause 1 (Scope).

<b>Transposition dates</b>	
Date of latest announcement of this ETS (doa):	31 May 1995
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	30 November 1995
Date of withdrawal of any conflicting National Standard (dow):	30 November 1995

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## 1 Scope

This ETS contains the details of the Interconnection Capability Tests (ITC) for equipment offering group 4 class 1 facsimile functionality. It is based upon CCITT Recommendation T.64 [1] and ISO 9646, Parts 1 [2] and 2 [3].

The concept of the Interconnection Capability Tests (ITC) is derived from the range of test types defined in CCITT Recommendation X.290. ITC is a subset of the "capability and behaviour" types of test and focuses on checking the basic intercommunication process.

NOTE: Full conformance testing is for further study.

This ETS is closely related to the following ETSs on group 4 class 1 facsimile equipment.

ETS 300 080 [9]: "Integrated Services Digital Network (ISDN) - ISDN lower layer protocols for telematic terminals".

ETS 300 112: "Integrated Services Digital Network (ISDN) - Facsimile group 4 class 1 equipment on the ISDN - End-to-end protocols".

ETS 300 087: "Integrated Services Digital Network (ISDN) - Facsimile group 4 class 1 equipment on the ISDN - Functional specification of the equipment".

ETS 300 280: "Terminal Equipment (TE) - Facsimile group 4 class 1 equipment on the Integrated Services Digital Network (ISDN) Terminal - testing".

## 2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriated places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] CCITT Recommendation T.64 (1988): "Conformance testing procedure for the teletex Recommendations".
- [2] ISO/IEC 9646-1 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework, Part 1: General concepts".
- [3] ISO/IEC 9646-2 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework, Part 2: Abstract test suite specification".
- [4] CCITT Recommendation T.62 (1988): "Control procedures for teletex and Group 4 facsimile service".
- [5] ITU-T Recommendation T.503 (1991): "A document application profile for the interchange of group 4 facsimile documents".
- [6] ITU-T Recommendation T.521 (1992): "Communication application profile BT0 for document bulk transfer based on the session service (according to the rules defined in T.62 bis)".
- [7] CCITT Recommendation T.563 (1988): "Terminal characteristics for group 4 facsimile apparatus".

- [8] CCITT Recommendation F.184 (1988): "Operational provisions for the international public facsimile service between subscriber stations with group 4 facsimile machines (telefax 4)".
- [9] ETS 300 080 (1992): "Integrated Services Digital Network (ISDN) - ISDN lower layer protocols for telematic terminals".

### **3 Definitions and abbreviations**

#### **3.1 Definitions**

For the purposes of this ETS, the definitions given in CCITT/ITU-T Recommendations T.62 [4], T.64 [1], T.503 [5], T.521 [6], T.563 [7] and F.184 [8] apply. However, for the purposes of this ETS group 4 facsimile terminal equipment is referred to as the "facsimile equipment".

#### **3.2 Abbreviations**

For the purposes of this ETS, the abbreviations given are those stated in the relevant CCITT/ITU-T Recommendations (T.62 [4], T.64 [1], T.503 [5], T.521 [6], T.563 [7] and F.184 [8]) and ETS 300 280 plus the following:

DTAM	Data Transfer Access Management
ITC	Interconnection Capability Tests
IUT	Implementation Under Test
ISDN	Integrated Services Digital Network
SPDU	Session Protocol Data Unit

### **4 Session tests**

Tests for the lower layers of the protocol, up to and including the Transport layer, are contained in ETS 300 080 [9].

Tests for the session functions are given in subclause 4.1, for the document functions in subclause 4.2 and for the application service functions in subclause 4.3.



#### 4.1 Session function tests

The following tests detailed in CCITT Recommendation T.64 [1], annex C, shall be performed with the following modifications:

the tables of SPDUs for commands and responses:

CSS,  
RSSP,  
RSSN,  
CSE,  
RSEP,  
CSUI,  
RSUI,

shall be replaced by the modified tables given in annex A of this ETS.

The following tests shall not be performed as they are concerned with "non-basic terminal capabilities" which are not appropriate to group 4 class 1 facsimile terminals:

CDN 1/0;  
CGN 0/0;  
CGN 0/1;  
CGN 0/2;  
CGN 0/3;  
CGN 91/0.

The following test has a typographical error in CCITT Recommendation T.64 [1]:

DE 0/2 calls for the tester to issue CDS I1-I7, this should read CSS I1-I7.

#### 4.2 Document function tests

The tests detailed in CCITT Recommendation T.64 [1], annex C (normative), shall be performed with the following modifications:

the tables of SPDUs for commands and responses:

CDS,  
CDCL,  
RDCLP,  
CDC,  
CDE,  
RDEP,  
CDPB,  
RDPBP,  
CDUI,

shall be replaced by the modified tables contained in this ETS.

The following tests shall not be performed as they are concerned with "non-basic terminal capabilities" which are not appropriate to group 4 class 1 terminals:

CDN 21/1;  
CDN 21/2;  
CDN 21/3;  
CDN 21/4.

### 4.3 Application service tests

The tests detailed in CCITT Recommendation T.64 [1], annex D (normative), shall be performed with the following exceptions:

MG 4;  
MG 5;  
MG 6.

Of tests MD 2 only Part (A) shall be performed and note 2 is not applicable.

MD 3  
MD 4  
MD 5  
MD 6

MD 8  
MD 9  
MD 10  
MD 11

CG 1  
CG 2  
CG 3  
CG 4

CD 1  
CD 2  
CD 3  
CD 4  
CD 5

ED 4

ED 7

## 5 Application layer tests

Annex B (normative) contains the Abstract Test Suite for the application layer.

## Annex A (normative): Session Protocol Data Unit (SPDU) list

See CCITT Recommendation T.64 [1] for an introduction to, and explanation of, the terminology used.

In the tables, figures underlined represent number of characters not values.

### A.1 Session protocol element

Table	Protocol element	
A.1	CSS	Command Session Start
A.2	RSSP	Response Session Start Positive
A.3	RSSN	Response Session Start Negative
A.4	CSE	Command Session End
A.5	RSEP	Response Session End Positive
A.6	CSA	Command Session Abort
A.7	RSAP	Session protocol element
A.8	CSUI	Command Session User Information
A.9	RSUI	Response Session User Information

Table A.1: < CSS > Session protocol element (Valid cases)

Command Session Start (CSS)	Session reference									NonBasicSession			Servic -ce ID	Inact -ive timer	Session service funct.	Non- basic term capab	Session user data	Priv -ate use	Non- std capab								
	C	L	G	L	P	L	P	P	L	P	G	L								P	P	P	L	P			
Tester sends	C	L	G	L	P	L	P	P	L	P	G	L	P	P	P	L	P	Not used in G4	G	L	A4,06	G	L	P	L	P	
Testcase	I	I	I	I	I	I	V	I	I	V	I	I	I	V	I	I	V	Cl 1	I	I	80,01	I	I	I	I	V	
	O	x	0	x	0	1	2	0	1	1	0	0	0	x	0	x	x	1	0	04	E	x	E	x	x		
	D	x	1	x	A	8	4	B	8	4	C	2	2	2	x	D	x	x	4	2	39	x	x	8	x	x	
	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M							
V1 With all defined parameters	0	x	0	x	0	1	2	0	0	1	0	0	2	0	x	0	x	x	0	0	0	The same SUD is used for all PDUs	E	x	E	x	x
	D	x	1	x	A	8	4	B	E	4	C	2	2	x	D	x	x	E	1	1	x		x	8	x	x	
V2 With P12 p. ex.	0	x	0	x	0	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0		E	x			
	D	x	1	x	A	8	4	B	E	4				2	3				E	1	1	x	x				
V3 With P OC and PG 02	0	x	0	x	0	1	2	0	0	1	0	0	2	0	x	0	x	x	0	0	0						
	D	x	1	x	A	8	4	B	E	4	C	2	2	x	D	x	x	E	1	1							
V4 LI defn on 3 octets	0Fxx	0Fxx	0F012	0F001				0	0					0	0	0	0	0	0	0							
	DFxx	1Fxx	AF08	BF0E				2	3					E	1	1	8	1	1								

Table A.1: < CSS > Session protocol element (Valid cases) (concluded)

Command Session Start (CSS)	Session reference						NonBasicSession			Servi- ce ID	Inact- -ive timer	Session service funct.	Non- basic term capab	Session user data			Priv- -ate use	Non- std capab
		Term ID	Date & time	Addit ref		Misc capab	Windo -w											
Tester sends	C L I I 0 x D x	G L I I 0 x 1 x	P L P I I V 0 1 2 A 8 4	P L P I I V 0 1 1 B 8 4	P L P I I V 0 0 C 2 2	G L I I 0 x 2 x	P L P I I V 0 x x D x x	P L P I I V 0 0 0 E 1 1	P L P I I V 0 0 0 8 1 1	P L P I I V 1 x x 2 x x	P L P I I V 1 0 04 4 2 39	Not used in G4 Cl 1 fax	G L I I C 0 1 8 M M	PV A4,06 80,01 02,81 01,00 M	G L I I E x x x	P L P I I V E x x 8 x x		
V5 Undefin- ed P and PLI = 0	0 x D x	0 x 1 x	0 1 2 A 8 4	0 0 1 B E 4	0 0 C O (PLI = 0)	0 0 2 6	0 0 0 F 1 1 *	0 0 0 E 1 1 *	0 0 0 8 1 1				The same SUD is used for all PDUs		E 0 8 0			
V6 Without options	0 x D x	0 x 1 x	0 1 2 A 8 4	0 0 1 B E 4		0 0 2 3		0 0 0 E 1 1	0 0 0 8 1 1									
V7 Separator "- " in PV OB	0 x D x	0 x 1 x	0 1 2 A 8 4	0 0 1 B E 4 ****		0 0 2 3		0 0 0 E 1 1	0 0 0 8 1 1									
V8 Wrong PV in service ID			Not appropriate for group 4 class 1 facsimile															

Table A.2: < RSSP > Session protocol element (Valid cases)

Response Session Start Positive (RSSP)	Session reference						NonBasicSession			Servi- ce ID	Sessn contr funct	Inact- ive timer	Sessn servic funct	Non- basic term capab	Session user data	Private use			Non- std capab
	R L	G L	P L P	Date & time	Addit ref		Misc capab	Windo -w	G L							P L P	P L P	G L P	
Tester sends	I I 0 x E x	I I 0 x 1 x	I I V 0 1 2 9 8 4	I I V 0 0 1 B E 4	I I V 0 0 C 2 2	I I 0 x 2 x	I I V 0 x x D x x	I I V 0 0 0 E 1 1	I I V 0 0 0 8 1 1	I I V 1 x x 0 x x	I I V 1 x x 2 x x	I I V 1 0 x 4 2 x		G L P I I V C 0 x 1 8 x M M M	G L I I E x x x	P L P I I V F x x x x x	P L P I I V E x x 8 x x		
Testcase		M M	M M M	M M M note2		M M		M M M	M M M										
V1 With all defined parameters	0 x E x	0 x 1 x	0 1 2 4 9 8	0 0 1 4 B E	0 0 2 C 2 note1	0 x 2 x	0 x x D x x	0 0 0 E 1 1	0 0 0 8 1 1	1 x x 0 x x	1 x x 2 x x	1 0 04 4 2 39	Not used in Gp 4 Cl 1 fax	A4,06 80,01 02,81 01,00	E x x x	F x x x x x	E x x 8 x x		
V2 With all P of CSS	0 x E x	0 x 1 x	0 1 2 4 9 8	0 0 1 4 B E	0 0 2 C 2 note1	0 x 2 x	0 x x D x x note1	0 0 0 E 1 1	0 0 0 8 1 1	1 x x 0 x x	1 x x 2 x x note1	1 0 04 4 2 39		All PDUs		E x x x note1	F x x x x x note1		
V3 With more PV than CSS	0 x E x	0 x 1 x	0 1 2 4 9 8	0 0 1 4 B E	0 0 2 C 2 note1	0 x 2 x	0 x x D x x note1	0 0 F E 1 F *	0 0 0 8 1 1	1 000 0 210 **	1 x x 2 x x note1	1 0 04 4 2 39		use the		E x x x note1	F x x x x x note1		
V4 With undefined parameters	0 x E x	0 x 1 x	0 1 2 4 9 8	0 0 1 4 B E	0 0 2 C 2 note1	0 x 4 x *	0 0 9 F 9 x *	0 0 0 E 1 1	0 0 0 8 1 1					same SUD					

Table A.2: < RSSP > Session protocol element (Valid cases) (continued)

Response Session Start Positive (RSSP)	Session reference						NonBasicSession			Servi- ce ID	Sessn contr funct	Inact -ive timer	Sessn servic funct	Non- basic term capab	Session user data	Private use			Non- std capab
	R L	G L	P L P	Date & time	Addit ref		Misc capab	Windo -w	G L							P L P	P L P	G L P	
Tester sends	I I	I I	I I V	I I V	I I V	I I	I I V	I I V	I I V	I I V	I I V	I I V	I I V	I I V	I I V	I I V	I I V	I I V	
Testcase	E x	1 x	9 8 4	B E 4	C 2 2	2 x	D x x	E 1 1	8 1 1	0 x x	2 x x	4 2 x		1 8 x	x x x	x x x	8 x x		
	M M	M M M	M M M	note2		M M		M M M	M M M					M M M					
V5 With PV = 0	0 x	0 x	0 1 2 4	0 0 1 4	0 0 2	0 0	0 0 0	0 0 0	0 0 0					The same SUD is used for all PDUs					
	E x	1 x	9 8	B E	C 2 note1	2 6	D 1 0 *	E 1 1	8 1 1										
V6 With PV error	0 x	0 x	0 1 2 4	0 0 1 4	0 0 2	0 0		0 0 0	0 0 0	1 0 0									
	E x	1 x	9 8	B E	C 2 note1	2 3		E 1 1	8 1 1	0 1 5 *									
V7 LI pres- ent in 3 octets	0 x	0 x	0F012 4	0F001 4	0 0 2	0 0		0F000	0 0 0										
	E x	1 x	9F08	BF0E	C 2 note1	2 5		EF011	8 1 1										
V8 Without options	0 x	0 x	0 1 2 4	0 0 1 4		0 0		0 0 0	0 0 0										
	E x	1 x	9 8	B E		2 3		E 1 1	8 1 1										

Table A.2: < RSSP > Session protocol element (Valid cases) (concluded)

Response Session Start Positive (RSSP)	Session reference						NonBasicSession			Servi- ce ID	Sessn contr funct	Inact -ive timer	Sessn servic funct	Non- basic term capab	Session user data	Private use			Non- std capab
	R	L	G	L	P	L	P	P	L							P	G	L	
Tester sends	I I 0 x	I I 0 x	I I 0 1	I I 2	V I I 0 0	V I I 1	V I I 0 0	I I 0 x	I I 0 x	V I I x	V I I x	V I I 0 x		G L P I I V	G L P I I V	P L P I I V	P L P I I V		
Testcase	E x M M	1 x M M	9 8 M M	4 M M	B E M M	4 M M	C 2 M M	2 x M M	D x M M	x M M	x M M	1 0 M M	4 2 M M	1 8 M M	x x M M	x x M M	x x M M	8 x M M	
V9 With PV of TID coded "+++"	0 x E x	0 x 1 x	0 1 9 8	++ ++ **	0 0 B E	<u>1</u> <u>4</u>	0 0 C 2	0 0 2 3		0 0 E 1	0 0 1 1			The same SUD is used for all PDUs					
V10 With LI = 0	0 x E x	0 x 1 x	0 1 9 8	<u>2</u> <u>4</u>	0 0 B E	<u>1</u> <u>4</u>		0 0 2 3		0 0 E 1	0 0 1 1				E 0 x 0 *				
<p>NOTE 1: Present if sent in CSS only.</p> <p>NOTE 2: Equal to parameters in CSS.</p>																			









Table A.4: < CSE > Session protocol element (Valid cases)

Table A.4: < CSE > Session protocol element (Valid cases)

Command Session End (CSE)	C	L	P	L	P	Optional
Tester sends Testcase	0 9	x x	1 1	x x	x x	
V1 Without parameter	0 9	0 0	-			
V2 With P 11 retain xport	0 9	0 3	1 1	0 1	0 0	
V3 With P 11 but release xport	0 9	0 3	1 1	0 1	0 1	
V4 With PL1 = 0	0 9	0 3	1 1	0 0	* (-)	*

Table A.5: < RSEP > Session protocol element (Valid cases)

Table A.5: < RSEP > Session protocol element (Valid cases)

Response Session End Positive (RSEP)	R	L
Tester sends Testcase	0 A	0 0
V1 Standard	0 A	0 0
V2 Three octet LI	0 A	*** F00 F00

Table A.6: &lt; CSA &gt; Session protocol element (Valid cases)

Table A.6: &lt; CSA &gt; Session protocol element (Valid cases)

Command Session Abort (CSA)			Session termination <sup>P</sup>		
	C I	L I	P I	L I	P V
Tester sends Testcase	1 9	x x	1 1 M	x x M	x x M
V1 With P11	1 9	0 3	1 1	0 1	0 0
V2 Other PV	1 9	0 3	1 1	0 1	0 5
V3 Three octet LI	1 9	0 5	1 1	F00 F01	0 1

Table A.7: &lt; RSAP &gt; Session protocol element (Valid cases)

Table A.7: &lt; RSAP &gt; Session protocol element (Valid cases)

Response Session Abort Positive (RSAP)		
	R I	L I
Tester sends Testcase	1 A	0 0
V1 Normal	1 A	0 0
V2 Three octet LI	1 A	*** F00 F00

Table A.8: < CSUI > Session protocol element (Valid cases)

Table A.8: < CSUI > Session protocol element (Valid cases)

Command Session User Information (CSUI)		Document protocol element (DPE)
Tester sends	C L I I	
Testcase	0 0 1 0	X X XXXX X X XXXX M M M
V1 With DPE	0 0 1 0	DPE depends on L6 state
V2 Three octet LI	0 F00 1 F00	DPE depends on L6 state

Table A.9: < RSUI > Session protocol element (Valid cases)

Table A.9: < RSUI > Session protocol element (Valid cases)

Response Session User Information (RSUI)		Request session function	Document Protocol Element (DPE)
Tester sends	R L I I	P L P I I V	
Testcase	0 0 2 0	1 x x 0 x x	X X XXXX X X XXXX M M M
V1 With parameter and user info	0 0 2 3	1 0 0 0 1 1	DPE depends on L6 state
V2 Without parameter	0 0 2 0	-	DPE depends on L6 state
V3 Three octet LI	0 0 2 9	1 F00 0 0 F01 1	DPE depends on L6 state
V4 with undefined PV	0 0 2 3	1 0 0 0 1 5	DPE depends on L6 state

## A.2 Document protocol element

Table	Protocol Element	
A.10	CDS	Command Document Start
A.11	CDC	Command Document Continue
A.12	CDE	Command Document End
A.13	RDEP	Response Document End Positive
A.14	CDPB	Command Document Page Boundary
A.15	RDPBP	Response Document Page Boundary Positive
A.16	RDPBN	Response Document Page Boundary Negative
A.17	CDCL	Command Document Capability List
A.18	RDCLP	Response Document Capability List Positive
A.19	CDUI	Command Document User Information
A.20	RDGR	Response Document General Reject

**Table A.10: < CDS > Document protocol element (Valid cases)**

Table A.10: < CDS > Document protocol element (Valid cases)

Command Doc Start (CDS)	Comm. Ident.	Doc Ref No.	Doc type ID	Non-Basic Term Capability	Session User Data	Private Use Param.
Tester sends Testcase	C L I I 2 x D x	P L P I I V 2 x x 9 x x M M M	P L P I I V 3 0 x 0 1 x	Not used in Group4 Class 1 Facsimile	G L P I I V C 0 x 1 8 x M M M	G L P L I I I I E x F x x x x x
V1 Optional param only used if negotiated		Not appropriate for group 4 class 1 facsimile.			A4,06 80,01,02, 81,01,00	
V2 Without opt parameters	2 0 D E	2 0 33 9 2 01			The same SUD is used for all PDUs.	
V3 With document ID PV 02 Control Doc		Not appropriate for group 4 class 1 facsimile				
V4 With document ID PV 03 Monitor Doc		Not appropriate for group 4 class 1 facsimile				



**Table A.10: < CDS > Document protocol element (Valid cases) (concluded)**

Command Doc Start (CDS)	Comm. Ident.	Doc Ref No.	Doc type ID	Non-Basic Term Capability	Session User Data	Private Use Param.
Tester sends Testcase	C L I I 2 x D x	P L P I I V 2 x x 9 x x M M M	P L P I I V 3 0 x 0 1 x	Not used in Group4 Class 1 Facsimile	G L P I I V C 0 x 1 8 x M M M	G L   P L I I   I I E x   F x x x   x x
V5 Normal document for interworking		Not appropriate for group 4 class 1 facsimile				
V6 Control doc for interworking		Not appropriate for group 4 class 1 facsimile				
V7 LI 3 octets	2 0 D F	2 F00 3 9 F01 2 ***			The same SUD is used for all PDUs	
V8 PLI = 0	2 0 D C	2 0 3 9 1 1 *				E X
V9 Operator document		Not appropriate for group 4 class 1 facsimile				

Table A.11: < CDC > Document protocol element (Valid cases)

Command Doc Continue (CDC)	Document Linking														Service inter wkg ident	Doc ref No.	Doc type ID	Non-basc term capabilities	Session user data	Priv use param																	
	C	L	G	L	P	L	P	P	L	P	P	L	P	P							L	P															
Tester sends	I	I	I	I	I	V	I	I	V	I	I	V	I	I	V	I	I	V	I	I	V		G	L	P	G	L	P									
Testcase	1	x	2	x	0	1	2	0	1	2	0	0	1	0	0	2	2	x	x	2	x	x	2	x	x	3	0	x		C	x	x	E	x	x		
	D	x	1	x	9	8	4	A	8	4	B	E	4	C	2	9	x	x	A	x	x	8	x	x	9	x	x	0	1	x		1	x	x	x	x	x
V1 With all previous document presented parameters	1	x	2	x	0	1	24	0	1	24	0	0	14	0	0	2	2	x	x	2	x	x	Not used in Gp 4 Cl 1 fax	2	0	3		Not used in Gp 4 Cl 1 fax	The SUD shall be identical to the initial CDS SUD.	E	x	x					
	D	x	1	x	9	8		A	8		B	E		C	2	9	x	x	A	x	x		9	1	2			x	x	x							
V2 Only mandatory parameters (note)	1	x	2	0												2	0	333	2	0	333		2	0	333												
	D	x	1	A												9	3	001	A	3	001		9	3	009												
NOTE: This case is valid only if this CDC occurs in the same session as the initial CDS.																																					

Table A.12: &lt; CDE &gt; Document protocol element (Valid cases)

Table A.12: &lt; CDE &gt; Document protocol element (Valid cases)

Command Document End (CDE)	C	L	Checkpoint ref number		
	I	I	P	L	P
Tester sends Testcase	2	0	I	I	V
	9	x	2	0	0
			A	x	x
			M	M	M
V1 CRN = 1, after CDS or last CRN+1	2	0	2	0	333
	9	x	A	x	xxx
V2 Three octet LI	2	0	2	F00	333
	9	x	A	F03	xxx

Table A.13: &lt; RDEP &gt; Document protocol element (Valid cases)

Table A.13: &lt; RDEP &gt; Document protocol element (Valid cases)

Response Document End Positive (RDEP)	R	L	Checkpoint ref number		
	I	I	P	L	P
Tester sends Testcase	2	x	I	I	V
	A	x	2	x	3
			A	x	x
			M	M	M
V1 CRN length and PV equal to CDE	2	x	2	x	3333
	A	x	A	x	xxxx
V2 CRN PV equal to CDE, length not equal	2	x		*	****
	A	x	2	x	3333
			A	x	xxxx
V3 Three octet LI	2	x	2	F00	333
	A	x	A	F03	xxx

Table A.14: < CDPB > Document protocol element (Valid cases)

Table A.14: < CDPB > Document protocol element (Valid cases)

Command Doc. Page Boundary (CDPB)			Checkpoint ref number		
	C	L	P	L	P
Tester sends	I	I	I	I	V
Testcase	3	0	2	0	0
	1	x	A	x	x
			M	M	M
V1 CRN = 1 after CDS or last CRN+1	3	0	2	0	333
	1	x	A	x	xxx
V2 Three octet LI	3	F00	2	0	333
	1	F05	A	3	xxx

Table A.15: < RDPBP > Document protocol element (valid cases)

Table A.15: < RDPBP > Document protocol element (valid cases)

Response Doc. Page Boundary Positive (RDPBP)			Checkpoint ref. number			Receive ability jeopardy		
	R	L	P	L	P	P	L	P
Tester sends	I	I	I	I	V	I	I	V
Testcase	3	x	2	x	3	2	x	x
	2	x	A	x	x	E	x	x
			M	M	M	M	M	M
V1 CRN length and PV equal to CDPB	3	x	2	x	3333	2	0	0
	2	x	A	x	XXXX	E	1	0
V2 CRN PV equal CDPB, length not equal	3	x		*	****	2	0	0
	2	x	A	x	0xxx	E	1	0
V3 Three octet LI	3	x		***		2	0	0
	2	x	A	F00	333	E	1	0
				F03	xxx			
V4 Param. 2 E set to 1	3	x	2	x	333	2	0	0
	2	x	A	x	xxx	E	1	1

Table A.16: &lt; RDPBN &gt; Document protocol element (Valid cases)

Table A.16: &lt; RDPBN &gt; Document protocol element (Valid cases)

Response Doc Page Boundary Negative (RDPBN)			Reason		
	R	L	P	L	P
	I	I	I	I	V
Tester sends	3	0	3	0	0
Testcase	0	x	2	1	x
			M	M	M
V1 With param	3	0	3	0	0
	0	3	2	1	0
V2 Three octet LI	3	0	***		
	0	5	3	F00	0
			2	F01	x

Table A.17: < CDCL > Document protocol element (Valid cases)

Command Doc Capability List (CDCL)			Inactive timer			Storage capacity negotiation			NonBasic Terminal capabilit- ies	Session User Data			Private use parameters			Non-std capabilities				
	C	L	P	L	P	P	L	PV		G	L	PV	G	L	P	P	L	PV		
Tester sends  (testcase)	I	I	I	I	V	I	I	xx	Not used in Gp4 C11 facsimile	I	I	see	I	I	V	I	I	V		
	3	X	1	X	X	2	x	xx		C	0	below	E	x	x	F	x	x		
	D	X	2	X	X	D	x			1	8	x	x	x	x	x	x			
V1 With all defined parameters	3	x	1	0	0	2	0	00		A4,06 80,01,02, 81,01,00		E	x	x	F	x	x	E	x	x
	D	x	2	1	0	D	2	2A				x	x	x	X	x	x	8	x	x
V2 With unexpected parameters	3	x	1	0	0	2	0	01	Not used for type approval											
	D	x	1	1	0	D	2	23											*	
V3 LI defn. on 3 oct.	3	Fxx	1	F00	0	2	0	01			The same SUD is used on all PDUs									
	D	Fxx ***	2	F01 ***	2	D	2	23												
V4 With several parameters	3	x	1	0	00															
	D	x	2	2	12															
V5 Without parameters	3	0																		
	D	A																		

**Table A.18: < RDCLP > Document protocol element (Valid cases)**

Response Doc Capability List Positive (RDCLP)			Inactive timer			Accept. of CDCL param.			Storage capacity negotiatn			Non-BasicTerminal capabilities  Not used in Gp 4 class 1 facsimile	Session User Data			Private use parameters			Non-std capab.				
	R	L	P	L	P	P	L	P	P	L	P		G	L	P	G	L	P	P	L	P		
Tester sends Testcase	I	I	I	I	V	I	I	V	I	I	V	I	I	V	I	I	V	I	I	V	I	I	V
	3	x	1	x	x	2	x	x	2	0	xx	C	0	see	E	x	x	F	x	x	E	x	x
	E	x	2	x	x	C	x	x	D	2	xx	1	8	below	x	x	x	x	x	x	8	x	x
V1 With all defined parameters	3	x	1	0	0	Not used in Gp 4 Class 1 fax			2	0	00			A4,06 80,01,02 81,01,00	E	x	x	F	x	x	E	x	x
	E	x	2	1	0				D	2	10				x	x	x	x	x	x	8	x	x
V2 With unexpected parameter	3	x	1	0	0				2	0	01		Not used for type approval										
	E	x	1	1	0				D	2	23												
			*																				
V3 With un-defn. PV	3	x	1	0	0				2	0	0		Not used for type approval										
	E	x	2	1	0				D	1	4												
											*												
V4 LI defn on 3 octets	3Fxx		1	F00	0				2	0	0F			The same SUD is used for all PDUs									
	EFxx ***		2	F01	2				D	2	8F												





Table A.19: &lt; CDUI &gt; Document protocol element (Valid cases)

Table A.19: &lt; CDUI &gt; Document protocol element (Valid cases)

Command Document User Information (CDUI)	C	L	Correct user information
Tester sends	I	I	
Testcase	0	0	XXXXXXXXXX
	1	0	XXXXXXXXXX
V1 Normal	0	0	XXXXXXXXXX
	1	0	XXXXXXXXXX
V2 Three octet LI	0	*** F00	XXXXXXXXXX
	1	F00	XXXXXXXXXX

Table A.20: &lt; RDGR &gt; Document protocol element (Valid cases)

Table A.20: &lt; RDGR &gt; Document protocol element (Valid cases)

Response Doc General Reject (RDGR)	R	L	P	L	P	Reflect param values
Tester sends	I	I	I	I	V	
Testcase	0	x	3	x	x	
	0	x	1	x	x	
			M	M	M	
V1 With param	0	x	3	0	x	
	0	x	1	1	x	
V2 With param	0	x	3	x	(x)	
	0	x	1	x		

### A.3 Session layer tests

#### Implementation Under Test (IUT) calling/Tester called

Test Number	Mandatory	PICS dependent	Additional comments
GN1	Y		RDCLP V2, 3, 5, 6, 7 are not used GN5 - GN14 if the IUT supports 5 page document transmission.
GN2	Y		
GN3	Y		
GN4	Y		
GN5	Y		
GN6	Y		
GN7	Y		
GN8	Y		
GN9	Y		
GN10	Y		
GN11	Y		
GN12	Y		
GN13	Y		
GN14	Y		
GN21	Y		
GN22	Y		
GE7/0	Y		
GE8/0	Y		
GE8/1	Y		
GE8/2	Y		
GE8/3	Y		
GE91/0	Y		
GE91/1	Y		
GE9C/0	Y		
GE93/0	Y		
GE93/1	Y		
GE93/3	Y		
GE93/4	Y		
GE94/0	Y		Ref. to GN tests should read GN1 - GN7.
GE94/1	Y		
GE94/2	Y		
GE94/3	Y		Ref. to GN tests should read GN1 - GN6.
GE94/4	Y		
GE95/0	Y		Ref. to GN tests should read GN1 - GN6.
GE95/1	Y		
GE95/2	Y		

\*

IUT calling/Tester called

Test Number	Mandatory	PICS dependent	Additional comments
GE95/4 GE95/5 GE95/6	Y Y Y		Ref. to GN tests should read GN1 - GN7 RDBP I1- I5 not used.
GE96/0 GE96/1 GE96/2		Y Y Y	
GE96/3		Y	
GE97/0 GE97/1	Y Y		
GE9C/0	Y		
GE93/0 GE93/1 GE93/3	Y Y Y		
GE93/4	Y		
GE94/0 GE94/1 GE94/2	Y Y Y		Ref. to GN tests should read GN1 - GN7.
GE94/3 GE94/4	Y Y		Ref. to GN tests should read GN1 - GN6.
GE95/0 GE95/1 GE95/2	Y Y Y		Ref. to GN tests should read GN1 - GN6.
GE95/4 GE95/5 GE95/6	Y Y Y		Ref. to GN tests should read GN1 - GN7 RDBP I1- I5 not used for interconnection capability testing.
GE96/0 GE96/1 GE96/2		Y Y Y	
GE96/3		Y	
GE97/0 GE97/1	Y Y		
E13/0 GE13/1 GE13/2	Y Y Y		

IUT called/Tester calling

Test Number	Mandatory	PICS dependent	Additional comments
GE14/0	Y		
GE14/1	Y		
DN1	Y		CSS V8 is not used.
DN2	Y		
DN4	Y		CSS V8 is not used.
DN5	Y		CDCL V2 is not used.
DN6	Y		
DN7	Y		
DN8	Y		
DN9	Y		
DN10	Y		
DN13	Y		
DN15	Y		
DE0/0	Y		
DE0/1	Y		
DE21/0	Y		
DE21/1	Y		
DE21/2	Y		
DE21/4	Y		
DE21/5	Y		
DE22/0	Y		
DE22/1	Y		
DE22/2	Y		
DE22/3	Y		
DE22/4	Y		
DE22/5	Y		
DE22/6	Y		
DE22/7	Y		
DE22/8	Y		
DE22/9	Y		
DE22/10	Y		
DE22/11	Y		
DE22/12	Y		
DE22/13	Y		
DE23/0	Y		
DE23/2	Y		
DE23/3	Y		
DE23/4	Y		
DE23/10	Y		Inactiv. timer left (CAS=CSA)
DE23/11	Y		at default setting.

IUT called/Tester calling

Test Number	Mandatory	PICS dependent	Additional comments
DE28/0	Y		
DE28/1	Y		
DE28/2	Y		
DE29/0	Y		
DE29/1	Y		
DE29/2	Y		
DE14/0	Y		
DE14/1	Y		
MG1	Y		
MG2	Y		
MG3	Y		
MD1	Y		note 2 is deleted.
MD2	Y		
MD7	Y		
EG1	Y		
EG2	Y		
ED1	Y		note 2 is deleted.
ED2	Y		
ED3	Y		
ED6	Y		

## **Annex B (normative):      Application layer Abstract Test Suite**

The following tests exercise the protocols which are specific to the group 4 class 1 facsimile application of the telematic protocol stack. Only tests 1, 7, 8 and 9 are mandatory, all the others depend on PICS declarations.

### **B.1    Tester sending, IUT receiving**

#### **B.1.1    Operational tests**

These tests exercise the normal operation of the terminal in receive mode.

##### **Test 1 - Default**

The tester sends document PFTEST (see ETS 300 280) at the default values (200 ppi, A4 format).

##### **Test 2 - Density**

The tester sends document PFTEST at all the resolutions stated as managed in the PICS.

##### **Test 3 - Paper\_formats**

The tester sends document PFTEST with all the paper formats stated as managed in the PICS.

##### **Test 4 - Compression**

The tester sends document PFTEST with the "compression" parameter set to "uncompressed mode" if this mode is stated as managed in the PICS.

##### **Test 5 - Combined**

The tester sends documents with the combination of all the densities and paper formats stated as managed in the PICS.

#### **B.1.2    Tolerance test**

These tests verify the tolerance of the terminal to non-basic features of the application protocol.

##### **Test 6 - Default\_value\_list**

The tester sends document PFTEST at optional transmission density of 240, 300 or 400 ppi, by modifying the default value (200 ppi) by means of the "default value list" parameter.

##### **Test 7 - Identifiers**

The tester sends document PFTEST at 200 ppi and uses optional identifiers such as "object identifier", "subordinates", "content identifier".

##### **Test 8 - Data\_image\_options**

The tester sends document PFTEST at 200 ppi and uses optional parameters such as "pel path", "line progression", number of pels per line", number of discarded pels", set to their basic values.

##### **Test 9 - Length\_txt\_unit**

The tester sends document PFTEST at 200 ppi and uses all the different ways allowed in ASN.1 (see CCITT Recommendation X.208) to code the length of the content portions of the facsimile document.

### B.1.3 List of tests

Test No 1	Type of test	Tester action	Tester detects	SPDUs sent by the tester
Default	Receive Initiate Send Initiate resp Receive Capability Send Capability cnf Receive Activity Start Receive page Receive Activity end Send Activity end cnf	S_CONreq  S_CAPreq  S_ASreq S_DATAreq S_AEreq	S_CONcnfp  S_CAPcnf   S_AEcnf	connect  activity_1  activity_1 data default

Test No 2	Type of test	Tester action	Tester detects	SPDUs sent by the tester
Density	Receive Initiate Send Initiate resp Receive Capability Send Capability cnf Receive Activity Start Receive page Receive Activity end Send Activity end cnf	S_CONreq  S_CAPreq  S_ASreq S_DATAreq S_AEreq	S_CONcnfp  S_CAPcnf   S_AEcnf	connect  activity_2  activity_2 data density

Test No 3	Type of test	Tester action	Tester detects	SPDUs sent by the tester
Page format	Receive Initiate	S_CONreq		connect
	Send Initiate resp		S_CONcnfp	
	Receive Capability	S_CAPreq		activity_3
	Send Capability cnf		S_CAPcnf	
	Receive Activity Start	S_ASreq		activity_3
	Receive page	S_DATAreq		data_pageformat
	Receive Activity end	S_AEreq		
	Send Activity end cnf		S_AEcnf	

Test No 4	Type of test	Tester action	Tester detects	SPDUs sent by the tester
Compression	Receive Initiate	S_CONreq		connect
	Send Initiate resp		S_CONcnfp	
	Receive Capability	S_CAPreq		activity_4
	Send Capability cnf		S_CAPcnf	
	Receive Activity Start	S_ASreq		activity_4
	Receive page	S_DATAreq		data_compression
	Receive Activity end	S_AEreq		
	Send Activity end cnf		S_AEcnf	



Test No 5	Type of test	Tester action	Tester detects	SPDUs sent by the tester
Combined	Receive Initiate	S_CONreq		connect
	Send Initiate resp		S_CONcnfp	
	Receive Capability	S_CAPreq		activity_5
	Send Capability cnf		S_CAPcnf	
	Receive Activity Start	S_ASreq		activity_5
	Receive page	S_DATAreq		data_combined
	Receive Activity end	S_AEreq		
Send Activity end cnf		S_AEcnf		

Test No 6	Type of test	Tester action	Tester detects	SPDUs sent by the tester
Default value list	Receive Initiate	S_CONreq		connect
	Send Initiate resp		S_CONcnfp	
	Receive Capability	S_CAPreq		activity_2
	Send Capability cnf		S_CAPcnf	
	Receive Activity Start	S_ASreq		activity_2
	Receive page	S_DATAreq		data_default_value_list
	Receive Activity end	S_AEreq		
Send Activity end cnf		S_AEcnf		

Test No 7	Type of test	Tester action	Tester detects	SPDUs sent by the tester
Identifier	Receive Initiate	S_CONreq		connect
	Send Initiate resp		S_CONcnfp	
	Receive Capability	S_CAPreq		activity_1
	Send Capability cnf		S_CAPcnf	
	Receive Activity Start	S_ASreq		activity_1
	Receive page	S_DATAreq		data_identifier
	Receive Activity end	S_AEreq		
Send Activity end cnf		S_AEcnf		

Test No 8	Type of test	Tester action	Tester detects	SPDUs sent by the tester
Image options	Receive Initiate	S_CONreq		connect
	Send Initiate resp		S_CONcnfp	
	Receive Capability	S_CAPreq		activity_1
	Send Capability cnf		S_CAPcnf	
	Receive Activity Start	S_ASreq		activity_1
	Receive page	S_DATAreq		data_image_options
	Receive Activity end	S_AEreq		
Send Activity end cnf		S_AEcnf		

Test No 9	Type of test	Tester action	Tester detects	SPDUs sent by the tester
Length txt unit	Receive Initiate Send Initiate resp Receive Capability Send Capability cnf Receive Activity Start Receive page Receive Activity end Send Activity end cnf	S_CONreq  S_CAPreq  S_ASreq S_DATAreq S_AEreq	S_CONcnfp  S_CAPcnf  S_AEcnf	connect  activity_1  activity_1 data_length_txt_unit

## B.2 Tester receiving, IUT sending

### B.2.1 Operational tests

The previous tests (Numbers 1, 2, 3 and 5) should also be performed in the other direction, "tester receiving", with the optional values as stated in the PICS.

NOTE: Tests 4, 6, 7, 8 and 9 from the IUT are not necessary.

### B.2.2 Translation of PDUs (in subclause B.1.2)

S_CONreq	Session Connect Request
S_CONcnfp	Session Connect Confirm Positive
S_CAPreq	Session Capabilities Request
S_CAPcnf	Session Capabilities Confirm
S_ASreq	Session Activity Start Request
S_DATAreq	Session DATA send Request
S_AEreq	Session Activity End Request
S_AEcnf	Session Activity End Confirm

### B.2.3 Realization of PDUs at communications port

#### Tester sending

S_CONreq	CSS (with SUD = 'connect' values)
S_CONcnfp	RSSP (with SUD = 'connect' values)
S_CAPreq	CSUI, CDCL (with SUD = 'activity' values)
S_CAcnf	RSUI, CDS (with SUD = matching set of values)
S_ASreq	CSUI, CDS (with SUD = activity values)
S_DATAreq	+ T.6 string
S_AEreq	CDE
S_AEcnf	RDEP

#### IUT sending

S_CONreq	CSS (with SUD = implementation dependent)
S_CONcnfp	RSSP (with SUD = 'connect' values)
S_eAPreq	CSUI, CDCL (with SUD = implementation dependent or possibly no CDC for mandatory values)
S_CAPcnf	RSUI, RDCLP (with SUD = 'activity' values or no RDCLP if no CDCL received)
S_ASreq	CSUI, CDS (with SUD = matching set of values to 'activity' values)
S_DATAreq	+ T.6 string
S_AEreq	CDE
S_AEcnf	RDEP

**B.2.4 List of PDUs**

See session and document PDU tables for details of other fields in the following commands and responses.

CSS command takes PDU values V6 RSSP command takes values V8 CDCL command takes PDU values V5 RDCLP command takes V8 CDS command takes V2 CDE command takes V1 RDEP command takes V1 CDPB (if used) command takes V1 RDPBP command takes V1 CSE command takes V3 RSEP command takes V1
--

**Table B.1: S\_CONreq**

**Table B.1: S\_CONreq**

SUD of CSS	Document Characteristics								
				Document Application Profile			Document Archit. Class		
Tester sends	P	L		P	L	P	P	L	P
	I	I		I	I	V	I	I	V
	A	0		8	0	0	8	0	0
	4	6		0	1	2	1	1	0
				M	M	M	M	M	M
connect	A	0		8	0	0	8	0	0
	4	6		0	1	2	1	1	0

Table B.2: S\_CAPreq\_cmd

SUD of CDS	Document Characteristics			Non-Basic Document characteristics							
	PI LI A4 06 M M	Appl. Profile	Archit. Class	PI LI A2 LL NM NM	Page dimensions				Raster Graph. Coding attrib.	Raster graph. pres. features	
		PI LI PV 90 01 (1) M M M	PI LI PV 81 01 (1) M M M		PI LI PV A2 LL 30 08 80 02 (2) 81 02 (2)	PI LI A3 06	Compression	PI LI A4 06	Pel transmission density		
Tester sends											
activity_1	A4 06	80 01 02	81 01 00								
activity_3	A4 06	80 01 02	81 01 00	A2 0C	A2 0A 30 08 02 hz 81 02 vt						
activity_2	A4 06	80 01 02	81 01 00	A2 05					A4 03	8B 01 ptd	
activity_4	A4 06	80 01 02	81 01 00	A2 05			A3 03	80 01 cp			
activity_5	A4 06	80 01 02	81 01 00	A2 11	A2 0A 30 08 02 hz 81 02 vt				A4 03	8B 01 ptd	

ptd = values of the "pel transmission density" parameter.  
hz, vt = values for the horizontal and vertical size of the "Page dimensions" parameter.  
cp = value of the "Compression" parameter.  
npl = value of the "number of pels per line" parameter.  
ndp = value of the "number of discarded pels" parameter.

**Table B.3: S\_DATA\_req (data\_default)**

CSUI/CDUI	Layout object (for document)										
	Tester sends	Object type	Descriptor body								
data_default		A2 03	02 01 00	Object identifier	Sub-ordinates	Default value list					
				pages attributes	dimensions	presentation attributes					
						content type	raster graph. attrib.				
							pel_path	line_progression	pel_transm. density		

CSUI/CDUI	Layout object (for page)										
	Tester sends	Object type	Descriptor body								
data_default (sūite)		A2 03	02 01 02	Object identifier	Content portions	dimensions	presentation attributes				
				raster graph. attrib.	content type						
						pel_path	line_progression	pel_transm. density			

CSUI/CDUI	Content portion									
	Tester sends	Content portion attributes							Content information	
data_default (sūite)		A3 LL	Content identifier	type of coding	Raster graphics coding attributes			04 (or 24) LL [T.6 string...]		
					number of pels per line	compression	number of disc. pels			

Table B.4: S\_DATA\_req (data\_density)

CSUI/CDUI	Layout object (for document)										
	Tester sends	A2 03	Object type	Descriptor body							
			02 01 00		Object identifier	Sub-ordinates	Default value list				
							pages attributes				
							dimensions	presentation attributes			
								content type	raster graph. attrib.		
									pel_path	line_progression	pel_transm. density
data_density											

CSUI/CDUI	Layout object (for page)																
	Tester sends	A2 0C	Object type	Descriptor body													
			02 01 02	31 07	Object identifier	Content portions	dimensions	presentation attributes									
								A6 05	content type	raster graph. attrib.							
										pel_path	line_progression	pel_transm. density					
									data_density (suite)								

CSUI/CDUI	Content portion										
	Tester sends	A3 LL	Content portion attributes							Content information	
			Content identifier	type of coding	Raster graphics coding attributes						
					number of pels per line	compression	number of disc. pels				
data_density (suite)											04 (or 24) LL [T.6 string...]



**Table B.5: S\_DATA\_req (data\_paper\_format)**

CSUI/CDUI	Layout object (for document)											
	Tester sends	data_paper_format	Object type	Descriptor body								
			A2 03	02 01 00	Object identifier	Sub-ordinates	Default value list					
							pages attributes					
							dimensions	presentation attributes				
								content type	raster graph. attrib.			
									pel_path	line_progression	pel_transm. density	

CSUI/CDUI	Layout object (for page)													
	Tester sends	data_paper_format (suite)	Object type	Descriptor body										
			A2 0F	02 01 02	31 0A	Object identifier	Content portions	dimensions	presentation attributes					
									raster graph. attrib.					
									80 02 hz A4 08 81 02 vt	content type	pel_path		line_progression	pel_transm. density

CSUI/CDUI	Content portion										
	Tester sends	data_paper_format (suite)	Content portion attributes							Content information	
			A3 LL	Content identifier	type of coding	Raster graphics coding attributes				04 (or 24) LL (T.6 string...)	
						number of pels per line	compression	number of disc. pels			

Table B.6: S\_DATA\_req (data\_compression)

CSUI/CDUI	Layout object (for document)										
	Tester sends	A2 03	Object type	Descriptor body							
			02 01 00		Object identifier	Sub-ordinates	Default value list				
							pages attributes				
							dimensions	presentation attributes			
								content type	raster graph. attrib.		
									pel_path	line_progression	pel_transm. density
data_compression											

CSUI/CDUI	Layout object (for page)										
	Tester sends	A2 03	Object type	Descriptor body							
			02 01 02		Object identifier	Content portions	dimensions	presentation attributes			
								content type	raster graph. attrib.		
									pel_path	line_progression	pel_transm. density
								data_compression (suite)			

CSUI/CDUI	Content portion										
	Tester sends	A3 LL	31 05	Content portion attributes						Content information	
				Content identifier	type of coding	Raster graphics coding attributes				04 (or 24) LL [T.6 string...]	
						number of pels per line	compression	number of disc. pels			
											82 01 cp
data_compression (suite)			A2 03								

**Table B.7: S\_DATA\_req (data\_combined)**

CSUI/CDUI	Layout object (for document)												
	Tester sends	Object type	Descriptor body										
data_combined		A2 03	02 01 00		Object identifier	Sub-ordinates	Default value list						
							pages attributes						
							dimensions	presentation attributes					
							content type	raster graph. attrib.					
									pel_path	line_progression	pel_transm. density		

CSUI/CDUI	Layout object (for page)														
	Tester sends	Object type	Descriptor body												
data_combined (suite)		A2 16	02 01 02	31 11	Object identifier	Content portions	dimensions	presentation attributes							
							80 02 hz A4 08 81 02 vt	A6 05	content type	raster graph. attrib.					
											pel_path	line_progression	pel_transm. density		
															82 01 ptd

CSUI/CDUI	Content portion											
	Tester sends	Content portion attributes							Content information			
data_combined (suite)		A3 LL		Content identifier	type of coding	Raster graphics coding attributes						
							number of pels per line	compression				number of disc. pels
										04 (or 24) LL [T.6 string...]		

Table B.8: S\_DATA\_req (data\_default\_value\_list)

CSUI/CDUI	Layout object (for document)														
	Tester sends	Object type	Descriptor body												
			Object identifier	Sub-ordinates	Default value list										
					dimensions	pages attributes									
						presentation attributes									
						content type	raster graph. attrib.								
							pel_path	line_progression	pel_transm. density						
data_default_value_list	A2 0E	02 01 00	31 09			A7 07	A2 05		A103		82 01 ptd				

CSUI/CDUI	Layout object (for page)										
	Tester sends	Object type	Descriptor body								
			Object identifier	Content portions	dimensions	presentation attributes					
						content type	raster graph. attrib.				
							pel_path	line_progression	pel_transm. density		
data default value list (suite)	A2 03	02 01 02									

CSUI/CDUI	Content portion										
	Tester sends	Content portion attributes								Content information	
		Content identifier	type of coding	Raster graphics coding attributes							
				number of pels per line	compression	number of disc. pels					
data default value list (suite)	A3 LL								04 (or 24) LL [T.6 string...]		

**Table B.9: S\_DATA\_req (data\_identifiers)**

CSUI/CDUI	Layout object (for document)														
	Tester sends	Object type	Descriptor body												
			Object identifier	Sub-ordinates	Default value list										
					pages attributes										
					dimensions	presentation attributes									
						content type	raster graph. attrib.								
							pel_path	line_progression	pel_transm. density						
data identifiers	A2 0D	02 01 00	31 08	41 01 31	A003120130										

CSUI/CDUI	Layout object (for page)											
	Tester sends	Object type	Descriptor body									
			Object identifier	Content portions	dimensions	presentation attributes						
						content type	raster graph. attrib.					
							pel_path	line_progression	pel_transm. density			
data identifiers (suite)	A2 0F	02 01 02	31 0A	4103312030	A103120130							

CSUI/CDUI	Content portion											
	Tester sends	Content portion attributes									Content information	
		Content identifier	type of coding	Raster graphics coding attributes								
				number of pels per line	compression	number of disc. pels						
data identifiers (suite)	A3 LL	31 07	40 05 31 20 30 20 30							04 (or 24) LL [T.6 string...]		

Table B.10: S\_DATA\_req (data\_image\_options)

CSUI/CDUI	Layout object (for document)											
	Tester sends	data_image_options	Object type	Descriptor body								
			A2 03	02 01 00	Object identifier	Sub-ordinates	Default value list					
							pages attributes					
							dimensions	presentation attributes				
								content type	raster graph. attrib.			
									pel_path	line_progression	pel_transm. density	

CSUI/CDUI	Layout object (for page)															
	Tester sends	data_image_options (suite)	Object type	Descriptor body												
			A2 12	02 01 02	31 0D	Object identifier	Content portions	dimensions	presentation attributes							
									A6 0B	42 01 01	A1 06	raster graph. attrib.				
												80 01 00	81 01 03	pel_path	line_progression	pel_transm. density

CSUI/CDUI	Content portion												
	Tester sends	data_image_options (suite)	Content portion attributes							Content information			
			A3 LL	31 0F	Content identifier	type of coding	Raster graphics coding attributes			04 (or 24) LL [T.6 string...]			
							80 01 01	A2 0A	number of pels per line			compression	number of disc. pels
									82 02 npl			82 01 cp	83 01 ndp

**Table B.11: S\_DATA\_req (data\_length\_txt\_unit)**

CSUI/CDUI	Layout object (for document)										
	Tester sends	data_length_txt_unit	Object type	Descriptor body							
			A2 03	02 01 00	Object identifier	Sub-ordinates	Default value list				
							pages attributes				
					dimensions	presentation attributes					
						content type	raster graph. attrib.				
pel_path	line_progression	pel_transm. density									

CSUI/CDUI	Layout object (for page)										
	Tester sends	data_length_txt_unit (suite)	Object type	Descriptor body							
			A2 03	02 01 02	Object identifier	Content portions	dimensions	presentation attributes			
								raster graph. attrib.			
					content type	raster graph. attrib.					
						pel_path	line_progression	pel_transm. density			

CSUI/CDUI	Content portion									
	Tester sends	data_length_txt_unit (suite)	Content portion attributes						Content information	
			Content identifier	type of coding	Raster graphics coding attributes				24 80 04 82 LL [T.6 file] or 24 80 04 82 11 [T.6 portion] 04 82 11 [T.6 portion] or 04 82 LL [T.6 file]	
					number of pels per line	compression	number of disc. pels	...		
A3 80 A3 82LL						or 24 82 LL 04 82 11 [T.6 port.] 04 82 11 [T.6 portion]				

## **Annex C (normative): Protocol Implementation Conformance Statement (PICS)**

### **C.1 Introduction**

To evaluate conformance/approval of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a given protocol. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

A client who requests a conformance/approval test shall provide to the test laboratory a completed PICS proforma for each layer of the equipment to be tested.

This annex comprises the PICS proformas related to end-to-end protocols tests of the B-channels part of ISDN facsimile group 4 class 1 equipment for ISDN basic access and circuit-switched mode (DTE-DTE communication):

Session/Presentation layer;

Application layer.

NOTE: Application layer PICS items related to terminal testing are found in annex D of ETS 300 280.

### **C.2 References**

Session/Presentation layer: CCITT Recommendation T.62 [4].

Application layer: CCITT/ITU-T Recommendation T.432, T.503 [5], T.521 [6], T.563 [7] and F.184 [8].

### **C.3 PICS proforma contents and structure**

The PICS proformas consist of tables structured as indicated in the following documents:

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

ISO/IEC 9646-2 [3]: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework, Part 2: Abstract test suite specification".

### **C.4 Preprinted table contents**

The pre-printed contents of the PICS tables provide the following:

- table/item identification, see clause C.5;
- item/facility names or short descriptions;
- references to the Standards;
- status attributes specifying the status of the items;
- columns to be filled in by the client, see clause C.6.



The status attribute in the "STATUS" column reflects the conformance requirements defined in the referenced Standard as follows:

- m = mandatory:           the item is specified as "mandatory", i.e. the capability is required for approval/conformance.
- o = optional:             the item is specified as "optional", i.e. the capability is not required for approval/conformance, but if it is implemented it shall conform to the specifications.

However, in order to reduce the time required for type approval testing, some of the status attributes are denoted "testing not applicable for type approval" meaning that these items shall not be tested for Interconnection Capability Testing.

### **C.5 Table/item identification**

The table/item identification in the PICS tables are as follows:

- the table headers contain a label composed of an initial capital letter which is the first letter of the layer name, and a serial (integer) number;
- the rows - each corresponding to an item - are numbered by serial (integer) numbers.

To identify an item, the table label and the item number are combined by use of a slash (solidus), "/", e.g. the third item in the second table in the Session/Presentation layer PICS is identified by "S2/3".

### **C.6 Guidance for completion**

The filling in is done in the right-hand table column named "IMPLEMENTED?". Each row of the column shall be filled in as follows:

- for implemented items a Y (or YES) is entered;
- for not implemented items a N (or NO) is entered.

For each non-implemented mandatory item the client shall provide a justification.

## C.7 Session/Presentation layer PICS

C7	<p style="text-align: center;"><u>SESSION / PRESENTATION LAYER PICS</u></p> <p style="text-align: center;">for end-to-end protocols tests of ISDN facsimile group 4 class 1 equipment, B-channels part, using ISDN basic access and circuit-switched mode (DTE-DTE communication)</p>
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REFERENCES
CCITT Recommendation T.62 [4]

TABLE SECTIONS:	S1	MAJOR CAPABILITIES
	S2	PDUs regarding SESSION ESTABLISHMENT/CLEARING, ref. S1/1
	S3	PDUs regarding SESSION INFORMATION TRANSFER, ref. S1/2
	S4	PDUs regarding SESSION MANAGEMENT, ref. S1/3
	S5	PDUs regarding DOCUMENT CONTROL, ref. S1/4
	S6	PDUs regarding DOCUMENT INFORMATION TRANSFER, ref. S1/5
	S7	PDUs regarding ERROR RECOVERY, ref. S1/6
	S8	NEGOTIATION at session initiation (CSS/RSSP), ref. S1/1
	S9	NEGOTIATION after session initiation (CDCL/RDCLP), ref. S1/4
	S10	PARTICULAR PROTOCOL PROCEDURES
	S11	PROCEDURES AND REACTIONS IN CASE OF PROTOCOL ERRORS
	S12	TIMERS

S1 MAJOR CAPABILITIES					
Item No.	MAIN ITEM	DETAILS IN TABLE	REFERENCE TO CCITT Rec.T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	Session establishment/clearing	S2	Table 1	m	
2	Session information transfer	S3	Table 1	m	
3	Session management	S4	Table 1	o *)	
4	Document information transfer	S5	Table 2	m	
5	Document control	S6	Table 2	m	
6	Document error recovery	S7	Table 2	m	
*) TESTING NOT APPLICABLE FOR TYPE APPROVAL.					

S2 PDUs regarding SESSION ESTABLISHMENT/CLEARING, ref. S1/1				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	CSS	3.2.1	m	
2	RSSP	3.2.2	m	
3	RSSN	3.2.3	m	
4	CSE	3.2.4	m	
5	RSEP	3.2.5	m	
6	CSA	3.2.6	m	
7	RSAP	3.2.7	m	

S3 PDUs regarding SESSION INFORMATION TRANSFER, ref. S1/2				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	CSUI	3.2.8	m	
2	RSUI	3.2.9	m	

S4 PDUs regarding SESSION MANAGEMENT, ref. S1/3				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	CSCC	3.2.10	o *)	
2	RSCCP	3.2.11	o *)	
*) TESTING NOT APPLICABLE FOR TYPE APPROVAL.				

S5 PDUs regarding DOCUMENT INFORMATION TRANSFER, ref. S1/4				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	CDUI	3.4.12	m	

S6 PDUs regarding DOCUMENT CONTROL, ref. S1/5				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	CDS	3.4.1	m	
2	CDC	3.4.3	o *)	
3	CDCL	3.4.4	m	
4	RDCLP	3.4.5	m	
5	CDE	3.4.6	m	
6	RDEP	3.4.7	m	
7	CDD	3.4.8	o *)	
8	RDDP	3.4.9	m	
9	CDR	3.4.10	o *)	
10	RDRP	3.4.11	m	
*) TESTING NOT APPLICABLE FOR TYPE APPROVAL.				

S7 PDUs regarding DOCUMENT ERROR RECOVERY, ref. S1/6				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	RDGR	3.4.2	o *)	
2	CDEB	3.4.13	m	
3	RDEEP	3.4.14	m	
4	RDEEN	3.4.15	m	
*) TESTING NOT APPLICABLE FOR TYPE APPROVAL.				

S8 NEGOTIATION at session initiation (CSS/RSSP), ref. S1/1				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	Non-basic window size	3.3.2.7, 4.3.2 5.7.2.6	m	
2	Value of Inactivity timer (see table S12)	3.2.2.2 h) 5.7.2.11	o *)	
3	Session service functions	3.2.1.2 h), 5.7.2.12	o *)	
4	Non-standardized capabilities	3.2.2.2 k), 5.7.2.13	o *)	
*) TESTING NOT APPLICABLE FOR TYPE APPROVAL.				

S9 NEGOTIATION after session initiation (CDCL/RDCLP), ref. S1/4				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	Storage capacity	using CDCL	3.4.4.2, 3.4.5.3	o *)
2		using RDCLP		o *)
3	Inactivity timer value, see table S12	using CDCL	3.4.4.5, 3.4.5.4	o *)
4		using RDCLP		o *)
5	Session user data	using CDCL	3.4.4.6, 3.4.5.4	m
6		using RDCLP		m
7	Private use	using CDCL	3.4.4.6, 3.4.5.4	o *)
8		using RDCLP		o *)
9	Non-standardized capabilities	using CDCL	3.4.4.7, 3.4.5.4	o *)
10		using RDCLP		o *)
*) TESTING NOT APPLICABLE FOR TYPE APPROVAL.				

S10 PARTICULAR PROTOCOL PROCEDURES				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	Use of session user data field	3.2.1.2 i), 3.4.1.2 e) 3.7.2.14	m	
2	Release of transport connection if timeout (CSA timer or Inactivity timer)	3.3.2.6 b)	m	
3	Response to CDCL without NBTC	3.4.5	m	
4	Indication of reason code "unable to continue the session" in RDPEN when a sink terminal sends RDPBP with RAJ=1 and subsequent memory overflow results in sending RDPBN	3.5.8	m *)	
5	Handling of document and checkpoint reference numbers	4.2	m	
6	Stop sending when window limit is reached	4.3, Fig.G-3	m	
7	Reception of CDE when outstanding acknowledgement exists	4.3, Fig.G-4	m	
8	Reception of a document page	5.7.2.12	m	
9	Sending of a complete document	5.7.2.12	m	
10	Use of session termination parameter in CSE indicating clearing of the transport connection	3.2.4.1	o *)	
11	Use of acknowledgement change request function	3.2.11, 5.7.2.8	o *)	
*) TESTING NOT APPLICABLE FOR TYPE APPROVAL.				

S11 PROCEDURES AND REACTIONS IN CASE OF PROTOCOL ERRORS				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	IMPLEMENTED? (Y=Yes/N=No)
Rejecting a document page by sending:				
1	- CSA	Fig.G-2: State 14	o *)	1)
2	- RDGR	Fig.G-4: State DR 7	o *)	1)
3	- RDPBN	Fig.G-4: State DR 7	o *)	1)
Responding a document reject (RDGR/RDPBN) by sending:				
4	- CSA	Fig.G-1: State 14	o	1)
5	- CDD	Fig.G-3: State DS 9	o	1)
6	- CDR	Fig.G-3: State DS 8	o	1)
Responding invalid/unexpected PDUs received during data transfer phase by sending:				
7	- CSA	Fig.G-1: State 14	o *)	1)
8	- CDD	Fig.G-3: State DS 9	o *)	1)
9	- CDR	Fig.G-3: State DS 8	o *)	1)
10	Session termination parameter in CSA	Table 9, 5.7.2.9	m	
11	Reason parameter in RSSN	3.2.3.2 g), 5.7.2.10	o *)	
12	Reason parameter in RSSN provided as a text message	3.2.3.2 g)	o *)	
13	Reason parameter in CDD and/or CDR	3.4.8.2, 3.4.10.2, 5.7.2.10	o *)	
1) Within the items 1-3, 4-6 and 7-9 at least one of the 3 options shall be implemented.				
*) TESTING NOT APPLICABLE FOR TYPE APPROVAL.				

S12		TIMERS			
Item No.	ITEM	REFERENCE TO CCITT Rec. T.62	STATUS	RANGES/VALUES	
				ALLOWED	SUPPORTED
1	Basic inactivity timer	4.1.2, 5.7.2.11	m	60 seconds	
2	Basic demand response timer	G.2.2.7 b)	m	60 seconds	
4	Negotiation of Inactivity timer value	4.1.2, 5.7.2.11	o *)	1-63 seconds	
5			o *)	1-63 minutes	
6			o *)	1-63 hours	
*) TESTING NOT APPLICABLE FOR TYPE APPROVAL.					

## C.8 Application layer PICS

C8	<p style="text-align: center;"><u>A P P L I C A T I O N L A Y E R P I C S</u></p> <p style="text-align: center;">for end-to-end protocols tests of ISDN facsimile group 4 class 1 equipment, B-channels part, using ISDN basic access and circuit-switched mode (DTE-DTE communication)</p>
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REFERENCES
CCITT/ITU-T Recommendation T.503 [5], T.521 [6], T.563 [7], F.184 [8]

TABLE SECTIONS:   A1   TERMINAL CLASS  
                      A2   DOCUMENT APPLICATION PROFILE  
                      A3   COMMUNICATION APPLICATION PROFILE

NOTE:           Application layer PICS items related to Terminal Testing are found in annex D of ETS 300 280.

A1 TERMINAL CLASS				
Item No.	ITEM	REFERENCE TO x) CCITT Rec. T.563 y) CCITT Rec. F.184	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	Class 1 operation	x) 1.5, 3.1.6, 3.2.8 y) 1.2.1	m	

A2 DOCUMENT APPLICATION PROFILE				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.503	STATUS	IMPLEMENTED? (Y=Yes/N=No)
1	A document is a succession of pages containing raster-graphics content architecture	5.3.1	m	
2	Paper formats as defined in T.563 [7]	5.3.2	m	
3	Use of vertical page orientation only	5.3.2	m	
4	Raster-graphics content as defined in T.563 [7]	5.4.1	m	

A3 COMMUNICATION APPLICATION PROFILE				
Item No.	ITEM	REFERENCE TO CCITT Rec. T.521	STATUS	IMPLEMENTED? (Y=Yes/N=No)
	Functional units as defined in T.432 for BT0:	5.2		
1	- Association use control (Kernel)		m	
2	- Capability		m	
3	- Document bulk transfer		m	
4	- Token control		m	
5	- Exception report		m	
4	- Reliable transfer mode 1		m	



**Annex D (normative): Protocol Implementation Extra Information for Testing (PIXIT)**

**PIXIT**  
**for**  
**end-to-end protocols tests**  
**of**  
**ISDN facsimile group 4 class I equipment, B-channels part,**  
**using ISDN basic access and circuit-switched mode (DTE-DTE communication)**

## **D.1 Introduction**

In order to test a protocol implementation, test related information in addition to that provided by the PICS may be needed. Such extra information is called a Protocol Implementation eXtra Information for Testing (PIXIT).

A client who requests a conformance/approval test shall provide to the test laboratory a completed PIXIT proforma for each layer of the equipment to be tested.

This annex comprises the PIXIT proformas for the Session/Presentation layer and the Application layer related to end-to-end protocols tests of the B-channels part of ISDN facsimile group 4 class I equipment for ISDN basic access and circuit-switched mode (DTE-DTE communication).

## **D.2 References**

Items in the corresponding PICS document (see annex C).

## **D.3 PIXIT proforma contents and structure**

The PIXIT proformas consist of tables for the provision of the extra information - additional to the PICS information - needed for the testing, see the following documents ISO/IEC 9646-1 [2] and ISO/IEC 9646-5.

## **D.4 Table/item identification**

The table/item identification in the PIXIT tables are as follows:

- the table headers contain a label composed of 2 capital letters and a serial (integer) number. The initial capital letter is the first letter of the layer name. The second capital letter is an X (for PIXIT, in order to distinguish between PICS and PIXIT identifications);
- the rows - each corresponding to an item - are numbered by serial (integer) numbers.

To identify an item, the table label and the item number are combined by use of a slash (solidus), "/", e.g. the third item in the first table of the Application layer PIXIT is identified by "AX1/3".

## **D.5 Guidance for completion**

The pre-printed text in the proformas indicates the kind of information to be filled in by the client.

The information provided in a PIXIT shall not conflict with information provided in the corresponding PICS or with the requirements of the Standards.

## D.6 Session/Presentation layer PIXIT

S E S S I O N / P R E S E N T A T I O N   L A Y E R   P I X I T

for

end-to-end protocols tests

of

ISDN facsimile group 4 class I equipment, B-channels part,  
using ISDN basic access and circuit-switched mode (DTE-DTE communication)

REFERENCES: PICS items (see annex C).

TABLE SECTION: SX1 CLIENT'S ADDITIONAL INFORMATION FOR TESTING

## SESSION/PRESENTATION LAYER PIXIT

SX1		CLIENT's ADDITIONAL INFORMATION FOR TESTING
Item No.	Reference to PICS	Facilities/abilities, values/ranges, statements, clarifications etc.
1	S8/1	Non-basic window sizes:
2	S8/4 S9/9 S9/10	Non-standardized capabilities:
3	S9/7 S9/8	Private use:

## D.7 Application layer PIXIT

A P P L I C A T I O N   L A Y E R   P I X I T

for

end-to-end protocols tests

of

ISDN facsimile group 4 class I equipment, B-channels part,  
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REFERENCES: PICS items (see annex C).

TABLE SECTIONS: AX1 MEANS OF CONTROL/OBSERVATION, TEST COORDINATION PROCEDURES, etc.  
AX2 CLIENT'S ADDITIONAL INFORMATION FOR TESTING.

APPLICATION LAYER PIXIT

AX1 MEANS OF CONTROL/OBSERVATION, TEST COORDINATION PROCEDURES, etc.		
Item No.	ITEM	ITEM SUPPORTED? (Yes=Y/No=N)
1	Called terminal set-up and release: D INITIATE cnf + service primitive (with result parameter = accept) is visible to the user	
2	In case of problems, the user can initiate abort procedure (D_U_ABORT_req)	
3	The user can specify the parameters of the non-basic document characteristic parameter (in D_CAPABILITY_req)	
Receiving of D_TOKEN_PLEASE_ind (polling):		
4	- Sending of D_CONTROL_GIVE_req is an automatic reaction	
5	- D_TOKEN_PLEASE_ind is ignored	
6	D CONTROL GIVE req can be sent independent of received D_TOKEN_PLEASE_ind so that the other side can send a document	
DTAM Protocol terminal: Reaction on invalid message (refer to annex B.3.1 of T.433):		
7	- Appropriate internal terminal event occurs	
8	- Issuing both D-PAind outgoing event (to its DTAMSE-user and DAB outgoing event (to its peer DTAMPM)	
9	Sending of a document (via D_TR req) after establishment of the connection do not require an explicit action of the operator	

APPLICATION LAYER PIXIT

AX2 CLIENT's ADDITIONAL INFORMATION FOR TESTING		
Item No.	Reference to PICS	Facilities/abilities, values/ranges, statements, clarifications etc.

**Annex E (informative): Bibliography**

- 1) CCITT Recommendation X.290 (1992): "OSI conformance testing methodology and framework for protocol Recommendations for CCITT applications - General concepts".
- 2) CCITT Recommendation T.432 (1988): "Document transfer and manipulation (DTAM) - Services and protocols - Service definition".
- 3) ISO/IEC 9646-5 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".
- 4) ETS 300 280: "Terminal Equipment (TE) - Facsimile group 4 class 1 equipment on the Integrated Services Digital Network (ISDN) - Terminal testing".
- 5) CCITT Recommendation X.208 (1988): "Specification of Abstract Syntax Notation One (ASN.1)".

## History

Document history	
February 1995	First Edition
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