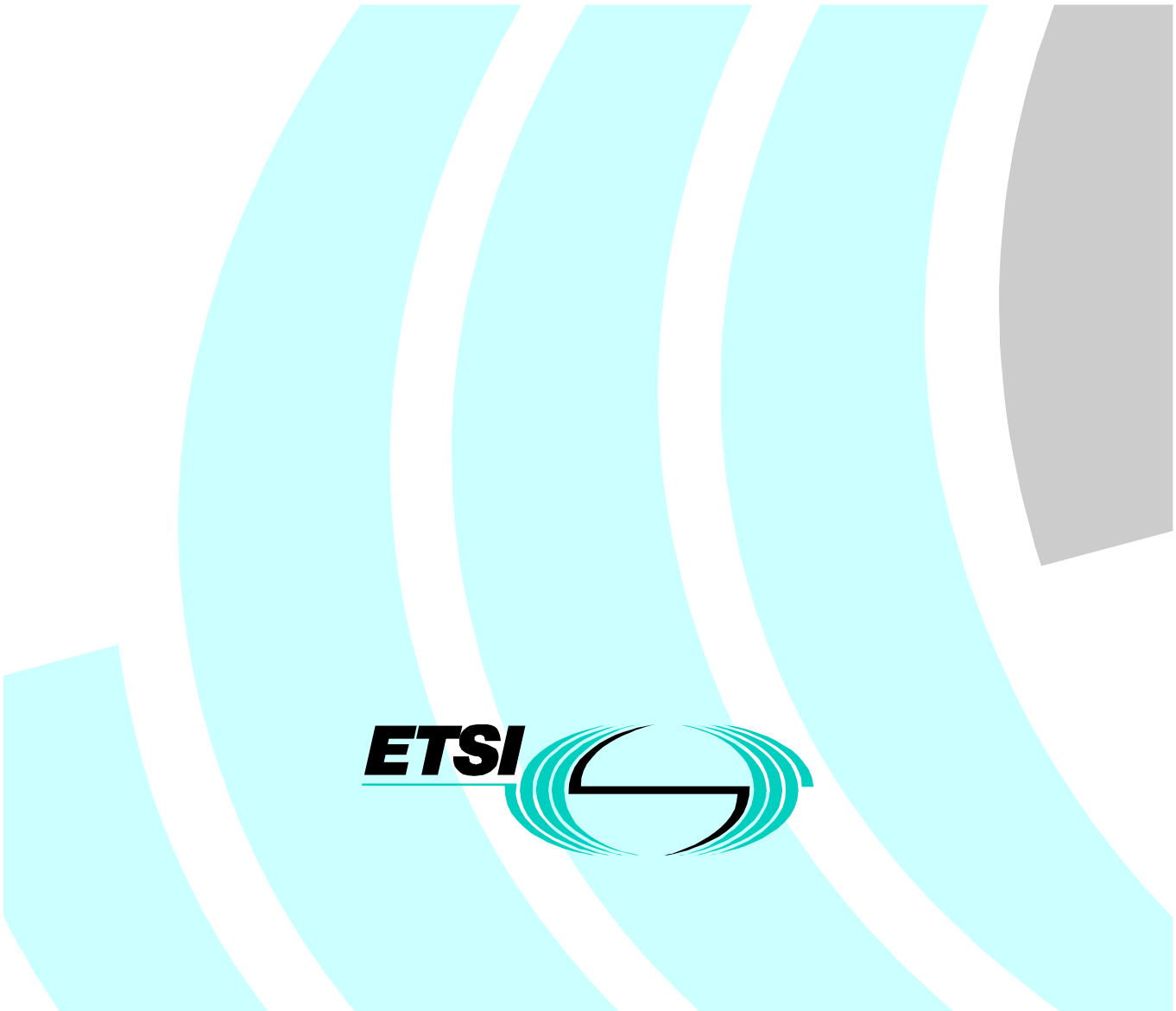
# EN 301 065-5 V1.1.3 (1998-10)

*European Standard (Telecommunications series)*

# Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network



Reference
DEN/SPS-05115-5 (9v190ie0.PDF)

Keywords
ISDN, DSS1, supplementary service, CCNR,
testing, TSS&TP, network

***ETSI***

Postal address
F-06921 Sophia Antipolis Cedex - FRANCE

Office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16
Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Internet
secretariat@etsi.fr
http://www.etsi.org

# Contents

# Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available **free of charge** from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://www.etsi.fr/ipr or http://www.etsi.org/ipr).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

# Foreword

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

The present document is part 5 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) supplementary service, as described below:

Part 1: "Protocol specification";

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

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

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

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

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

| National transposition dates | |
|---|---|
| Date of adoption of this EN: | 9 October 1998 |
| Date of latest announcement of this EN (doa): | 31 January 1999 |
| Date of latest publication of new National Standard or endorsement of this EN (dop/e): | 31 July 1999 |
| Date of withdrawal of any conflicting National Standard (dow): | 31 July 1999 |

# 1 Scope

This fifth part of EN 301 065 specifies the Test Suite Structure and Test Purposes (TSS&TP) for the Network side of the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [7]) of implementations conforming to the stage three standard for the Completion of Calls on No Reply (CCNR) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, EN 301 065-1 [1].

A further part of the present document specifies the Abstract Test Suite (ATS) and partial PIXIT proforma based on the present document. Other parts specify the TSS&TP and the ATS and partial PIXIT proforma for the User side of the T reference point or coincident S and T reference point of implementations conforming to EN 301 065-1 [1].

# 2 Normative references

References may be made to:

a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or

b) all versions up to and including the identified version (identified by "up to and including" before the version identity); or

c) all versions subsequent to and including the identified version (identified by "onwards" following the version identity); or

d) publications without mention of a specific version, in which case the latest version applies.

A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] EN 301 065-1 (V1.1): "Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[2] EN 301 065-2 (V1.1): "Integrated Services Digital Network (ISDN); Completion of Calls on No Reply (CCNR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

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

[4] ISO/IEC 9646-2 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 2: Abstract test suite specification".

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

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

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

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

[9] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".

[10] CCITT Recommendation E.164 (1997): "The international public telecommunication numbering plan".

[11] ITU-T Recommendation I.210 (1993): "Principles of the telecommunication services supported by an ISDN and the means to describe them".

[12] EN 300 403-3: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 3: Protocol Implementation Conformance Statement (PICS) proforma specification".

# 3 Definitions and abbreviations

## 3.1 Definitions

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

### 3.1.1 Definitions related to conformance testing

**abstract test case:** Refer to ISO/IEC 9646-1 [3].

**Abstract Test Suite (ATS):** Refer to ISO/IEC 9646-1 [3].

**active test:** A test case where the IUT is required to send a particular message, but not in reaction to a received message. This would usually involve the use of PIXIT information to see how this message can be generated and quite often is specified in an ATS using an implicit send event.

**Implementation Under Test (IUT):** Refer to ISO/IEC 9646-1 [3].

**implicit send event:** Refer to ISO/IEC 9646-3 [5].

**lower tester:** Refer to ISO/IEC 9646-1 [3].

**passive test:** A test case where the IUT is required to respond to a protocol event (e.g. received message) with another protocol event (e.g. send message) which normally does not require any special operator intervention as associated with the implicit send event.

**point of control and observation:** Refer to ISO/IEC 9646-1 [3].

**Protocol Implementation Conformance Statement (PICS):** Refer to ISO/IEC 9646-1 [3].

**PICS proforma:** Refer to ISO/IEC 9646-1 [3].

**Protocol Implementation eXtra Information for Testing (PIXIT):** Refer to ISO/IEC 9646-1 [3].

**PIXIT proforma:** Refer to ISO/IEC 9646-1 [3].

**system under test:** Refer to ISO/IEC 9646-1 [3].

**Test Purpose (TP):** Refer to ISO/IEC 9646-1 [3].

### 3.1.2 Definitions related to EN 301 065-1

**component:** See EN 300 196-1 [6], subclause 11.2.2.1.

**dummy call reference:** See EN 300 403-1 [8], subclause 4.3.

**Integrated Services Digital Network (ISDN):** See ITU-T Recommendation I.112 [9], definition 308.

**ISDN number:** A number conforming to the numbering and structure specified in CCITT Recommendation E.164 [10].

**invoke component:** See EN 300 196-1 [6], subclause 11.2.2.1.

**return error component:** See EN 300 196-1 [6], subclause 11.2.2.1.

**return result component:** See EN 300 196-1 [6], subclause 11.2.2.1.

**service; telecommunication service:** See ITU-T Recommendation I.112 [9], definition 201.

**supplementary service:** See ITU-T Recommendation I.210 [11], subclause 2.4.

**S/T:** The DSS1 protocol entity at the User side of the user-network interface where a coincident S and T reference point applies.

**T:** The DSS1 protocol entity at the User side of the user-network interface where a T reference point applies (User is a Private ISDN).

## 3.2 Abbreviations

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

| | |
|---|---|
| ATS | Abstract Test Suite |
| CCNR | Completion of Calls on No Reply |
| ISDN | Integrated Services Digital Network |
| IUT | Implementation Under Test |
| N0 | Null call state |
| N3 | Outgoing Call Proceeding call state |
| N4 | Call Delivered call state |
| N7 | Call Received call state |
| N10 | Active call state |
| N11 | Disconnect Request call state |
| N19 | Release Request call state |
| N31 | Bearer Independent Transport call state |
| PICS | Protocol Implementation Conformance Statement |
| PIXIT | Protocol Implementation eXtra Information for Testing |
| TP | Test Purpose |
| TSS | Test Suite Structure |

# 4 Test Suite Structure (TSS)

| **Signalling procedures at the coincident S and T reference point** | **Group** |
|---|---|
| Activation | N01 |
| Deactivation | N02 |
| General interrogation | N03 |
| Specific interrogation | N04 |
| Recall indication | N05 |
| CCNR call request | N06 |
| Network initiated deactivation procedure | N07 |
| B free but A busy procedure | N09 |
| User A monitoring procedure | N09 |
| Call information retention | N10 |
| **Procedures for interworking with private ISDNs** | |
| Procedures for the originating T reference point | N11 |
| Procedures for the destination T reference point | N12 |

**Figure 1: Test suite structure**

# 5 Test Purposes (TP)

## 5.1 Introduction

For each test requirement a TP is defined.

### 5.1.1 TP naming convention

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see table 1).

**Table 1: TP identifier naming convention scheme**

Identifier: **<ss>_<iut><group>_<nnn>**

| | | | | |
|---|---|---|---|---|
| <ss> | = | supplementary service: | "CCNR" | |
| <iut> | = | type of IUT: | U | User |
| | | | N | Network |
| <group> | = | group | 2 digit field representing group reference according to TSS | |
| <nnn> | = | sequential number | (001-999) | |

### 5.1.2 Source of TP definition

The TPs are based on EN 301 065-1 [1].

### 5.1.3 TP structure

Each TP has been written in a manner which is consistent with all other TPs. The intention of this is to make the TPs more readable and checkable. A particular structure has been used and this is illustrated in table 2. This table should be read in conjunction with any TP, i.e. use a TP as an example to fully understand the table.

**Table 2: Structure of a single TP for CCNR**

| TP part | Text | Example |
|---|---|---|
| **Header** | **<Identifier>** *tab*<br>**<paragraph number in base ETS>** *tab*<br>**<condition>** *CR.* | see table 1<br>**subclause 0.0.0**<br>**mandatory, optional (see note 1)** |
| **Stimulus** | Ensure that the IUT in the<br><basic call state> or <CCNR state><br><trigger> *see below for message structure*<br>*or* <goal> | <br>N10 etc.<br>receiving a XXXX message<br>to request a ... |
| **Reaction** | <action><br><conditions><br>*if the action is sending*<br>*see below for message structure*<br><next action>, *etc.*<br>and remains in the same state<br>*or* and enters state <state> | sends, saves, does, etc.<br>using en bloc sending, ... |
| **Message structure** | <message type><br>message containing a<br>*a)* <info element><br>information element with<br>*b)* a <field name><br>encoded as *or* including<br><coding of the field> and *back to a or b,* | SETUP, FACILITY, CONNECT, ...<br><br>Bearer capability, Facility, ... |
| NOTE 1: Mandatory test purpose are always applicable. Optional test purposes are applicable according to the configuration options of the IUT. If the configuration option is covered by a PICS item, a selection criteria is indicated, else the selection of the corresponding test cases will depend on test suite parameters (PIXIT) in the ATS.<br>NOTE 2: Text in italics will not appear in TPs and text between <> is filled in for each TP and may differ from one TP to the next. | | |

### 5.1.4 Test strategy

As the base standard EN 301 065-1 [1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification EN 301 065-2 [2]. The criteria applied include the following:

- only the requirements from the point of view of the T or coincident S and T reference point are considered;
- whether or not a test case can be built from the TP is not considered.

## 5.2 Network TPs for CCNR

All PICS items referred to in this subclause are as specified in EN 301 065-2 [2] unless indicated otherwise by another numbered reference.

Unless specified:

- The messages indicated are valid and contain at least the mandatory information elements and possibly optional information elements.
- The information elements indicated are valid and contain at least the mandatory parameters and possibly optional parameters.

## 5.2.1 Signalling procedures at the coincident S and T reference point

**Selection:** IUT supports coincident S/T reference point procedures. PICS: R 3.1.

NOTE: The signalling procedures at the coincident S and T reference point use mainly the bearer-independent connectionless transport mechanism using the dummy call reference. To augment the readability of the test purposes, basic call states are only mentioned where significant.

### 5.2.1.1 Activation

NOTE: To check the activation of the OCB supplementary service, the IUT is supposed to have no instance of the CCNR service activated before to start the execution of the test.

**CCNR_N01_001 subclause 9.1.1 mandatory**
Ensure that the IUT in call state N4 and in the Retain Active and CCNR Idle state , receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest invoke component including the callLinkageID parameter,

sends a DISCONNECT message containing a Cause information element indicating cause value 31 "Normal, unspecified", sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest return result component, enters call state N12 and enters the CCNR Activated state.

**CCNR_N01_002 subclause 9.1.1 mandatory**
Ensure that the IUT in call state N0 and in the Retain Active and CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest invoke component including the callLinkageID parameter,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest return result component, remains in call state N0 and enters the CCNR Activated state.

**CCNR_N01_003 subclause 9.1.2 mandatory**
Ensure that the IUT in the Retain Active and CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest invoke component including the callLinkageID parameter, when the user has not subscribed to the CCNR supplementary service,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest return error component indicating "notSubscribed" and remains in the CCNR Idle state.

**CCNR_N01_004 subclause 9.1.2 mandatory**
Ensure that the IUT in the Retain Active and CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest invoke component including an invalid callLinkageID parameter,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest return error component indicating "invalidCallLinkageID"and remains in the CCNR Idle state.

**CCNR_N01_005 subclause 9.1.2 mandatory**
Ensure that the IUT in the Retain Active and CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest invoke component including the callLinkageID parameter, when user A’s queue is full,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest return error component indicating "outgoingCCBSQueueFull"and remains in the CCNR Idle state.

**CCNR_N01_006 subclause 9.1.2 optional**
Ensure that the IUT in the Retain Active and CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest invoke component including a callLinkageID parameter for which CCNR is already activated,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest return error component indicating "cCBSIsAlreadyActivated" and remains in the CCNR Idle state.

**Selection:** IUT supports the check for identical calls option. PICS: MC 8.

**CCNR_N01_007 subclause 9.1.2 mandatory**
Ensure that the IUT in the Retain Active and CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest invoke component including the callLinkageID parameter, when there are invalid supplementary service interactions between CCNR and the call identified by the CallLinkageID,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest return error component indicating "supplementaryServiceInteractionNotAllowed" and remains in the CCNR Idle state.

**CCNR_N01_008 subclause 9.1.2 mandatory**
Ensure that the IUT in the Retain Active and CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest invoke component including a callLinkageID parameter, when CCNR is not available to the destination,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRRequest return error component indicating "longTermDenial" or "shortTermDenial"and remains in the CCNR Idle state.

#### 5.2.1.2 Deactivation

**CCNR_N02_001 subclause 9.2.1 mandatory**
Ensure that the IUT in the CCNR Activated state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCBSDeactivate invoke component,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCBSDeactivate return result component and enters the CCNR Deactivation Idle state.

**CCNR_N02_002 subclause 9.2.2 mandatory**
Ensure that the IUT in the CCNR Activated state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCBSDeactivate invoke component including an invalid CCBS Reference,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCBSDeactivate return error component indicating "invalidCCBSReference" and remains in the CCNR Activated state.

#### 5.2.1.3 Interrogation

##### 5.2.1.3.1 General interrogation

**CCNR_N03_001 subclause 9.3.1.1 mandatory**
Ensure that the IUT in the CCNR Activated state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate invoke component without a cCBSReference parameter,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate return result component with the Recall mode and the Call details parameters and remains in the CCNR Activated state.

**CCNR_N03_002 subclause 9.3.1.1 mandatory**
Ensure that the IUT in the CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate invoke component without a cCBSReference parameter,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate return result component with the Recall mode parameter and without the Call details parameter and remains in the CCNR Idle state.

**CCNR_N03_003 subclause 9.3.1.2 mandatory**
Ensure that the IUT in the CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate invoke component without a cCBSReference parameter, when the user has not subscribed to the CCNR supplementary service,

sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate return error component indicating "notSubscribed" and remains in the CCNR Idle state.

#### 5.2.1.3.2 Specific interrogation

**CCNR_N04_001 subclause 9.3.2.1 mandatory**
Ensure that the IUT in the CCNR Activated state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate invoke component with a cCBSReference parameter,
sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate return result component with the Recall mode and the Call details parameters and remains in the CCNR Activated state.

**CCNR_N04_002 subclause 9.3.2.2 mandatory**
Ensure that the IUT in the CCNR Idle state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate invoke component with a cCBSReference parameter, when the user has not subscribed to the CCNR supplementary service,
sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate return error component indicating "notSubscribed" and remains in the CCNR Idle state.

**CCNR_N04_003 subclause 9.3.2.2 mandatory**
Ensure that the IUT in the CCNR Activated state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate invoke component with an invalid cCBSReference parameter, when the user has not subscribed to the CCNR supplementary service,
sends a FACILITY message with the dummy call reference containing a Facility information element with a CCNRInterrogate return error component indicating "invalidCCBSReference" and remains in the CCNR Activated state.

### 5.2.1.4 Invocation and operation

#### 5.2.1.4.1 Recall indication

**CCNR_N05_001 subclause 9.4.1.1 mandatory**
Ensure that the IUT in the CCNR Activated state, having checked that the user is neither busy nor CCBS busy, in order to indicate that it is prepared for establishment of the requested call,
sends a FACILITY message with the dummy call reference containing a Facility information element with a CCBSRemoteUserFree invoke component and enters the CCNR Free state.

**CCNR_N05_002 subclause 9.4.1.2, 9.4.4.1 mandatory**
Ensure that the IUT in the CCNR Free state, on the expiry of timer T-CCBS3,
sends a FACILITY message with the dummy call reference containing a Facility information element with a CCBSErase invoke component indicating "t-CCBS3-timeout" and enters the CCNR Idle state.

**CCNR_N05_003 subclause 9.4.1.2, 9.4.4.1 mandatory**
Ensure that the IUT in the CCNR Free state, receiving a FACILITY message with the dummy call reference containing a Facility information element with a reject component including the invoke identifier,
sends no message and remains in the CCNR Free state.

#### 5.2.1.4.2 CCNR call request

**CCNR_N06_001 subclause 9.4.2.1 mandatory**
Ensure that the IUT in the Null call state N0 and CCNR Free state, if the global recall option and a point-to-point configuration apply, on receipt of a SETUP message containing Bearer capability information element(s) from the original call and a Facility information element with a CCBSCall invoke component including the CCBSReference from the previously sent CCBSRemoteUserFree invoke component,
sends a CALL PROCEEDING message and enters the call state N03.

**Selection:** Specific recall option supported. PICS: MC 7.1 and R 7.1 EN 300 403-3[12].

**CCNR_N06_002 subclause 9.4.2.1 mandatory**
Ensure that the IUT in the Null call state N0 and CCNR Free state, if the specific recall option applies, on receipt of a SETUP message containing Bearer capability information element(s) from the original call and a Facility information element with a CCBSCall invoke component including the CCBSReference from the previously sent CCBSRemoteUserFree invoke component,

sends a CALL PROCEEDING message and enters the call state N3.

**Selection:** Specific recall option supported. PICS: MC 7.2.

**CCNR_N06_003 subclause 9.4.2.1 mandatory**
Ensure that the IUT in the Null call state N0 and CCNR Free state, if the global recall option and a point-to-multipoint configuration apply, on receipt of a SETUP message containing Bearer capability information element(s) from the original call and a Facility information element with a CCBSCall invoke component including the CCBSReference from the previously sent CCBSRemoteUserFree invoke component,

sends a FACILITY message (UI frame) containing a Facility information element with a CCBSStopAlerting invoke component including the CCBSReference followed by a CALL PROCEEDING message and enters the call state N3.

**Selection:** Global recall option supported. PICS: MC 7.1 and R 7.2 [12].

**CCNR_N06_004 subclause 9.4.2.2 mandatory**
Ensure that the IUT in the Null call state N0 and CCNR Free state, on receipt of a SETUP message containing Bearer capability information element(s) from the original call and containing a Facility information element with a CCBSCall invoke component including an invalid CCBSReference value,

sends a RELEASE COMPLETE message containing a Facility information element with a CCBSCall return error component indicating "invalidCCBSReference" and enters the call state N0.

**CCNR_N06_005 subclause 9.4.2.2 mandatory**
Ensure that the IUT in the Null call state N0 and CCBS Activated state, on receipt of a SETUP message containing Bearer capability information element(s) from the original call and containing a Facility information element with a CCBSCall invoke component before having sent a cCBSRemoteUserFree invoke component for this user's CCBSReference,

sends a RELEASE COMPLETE message containing a Facility information element with a CCBSCall return error component indicating "notReadyForCall" and enters the call state N0.

**CCNR_N06_006 subclause 9.4.2.2 mandatory**
Ensure that the IUT in the Null call state N0 and CCNR Free state, on receipt of a SETUP message containing Bearer capability information element(s) from the original call and containing a Facility information element with a CCBSCall invoke component when no B-channels can be selected,

sends a RELEASE COMPLETE cause #34 or #44 and enters the call state N0.

**Selection:** IUT supports specific recall option. PICS: MC 7.2.

**CCNR_N06_007 subclause 9.4.2.2 mandatory**
Ensure that the IUT in the Null call state N0 and CCNR Free state, where a multipoint configuration exists and the global recall option applies, on receipt of a SETUP message containing Bearer capability information element(s) from the original call and containing a Facility information element with a CCBSCall invoke component when no B-channels can be selected,

sends a FACILITY message (UI frame) containing a Facility information element with a CCBSStopAlerting invoke component including the same CCBSReference value and a RELEASE COMPLETE cause #34 or #44 and enters the call state N0.

**Selection:** Global recall option supported. PICS: MC 7.1.

**CCNR_N06_008 subclause 9.4.2.2 mandatory**
Ensure that the IUT in the Null call state N00 and CCNR Free state, where a multipoint configuration exists and the global recall option applies, on receipt of more than one SETUP message containing Bearer capability information element(s) from the original call and containing a Facility information element with a CCBSCall invoke component,

continues basic call procedures for the first SETUP message and sends a RELEASE COMPLETE message containing a Facility information element with a CCBSCall return error component indicating "alreadyAccepted" in response to the other SETUP messages and enters the call state N1.

**Selection:** Global recall option supported. PICS: MC 7.1.

#### 5.2.1.4.3 CCNR call establishment

**CCNR_N07_001 subclause 9.4.3.1 mandatory**
Ensure that the IUT in the Null call state N3 and CCNR Call Init state, to indicate that user B has accepted the call,
sends a CONNECT message and enters the call state N10.

**CCNR_N07_002 subclause 9.4.3.1 mandatory**
Ensure that the IUT in the Null call state N7 and CCNR Call Init state, to indicate that user B has accepted the call,
sends a CONNECT message and enters the call state N10.

**CCNR_N07_003 subclause 9.4.3.1 mandatory**
Ensure that the IUT in the Null call state N10 and CCNR Call Init state, and the CCNR request has not been deactivated,
sends a FACILITY message containing a Facility information element with a CCBSErase invoke component including the cCBSEraseReason parameter indicating "normal-unspecified" and remains in the call state N10.

**CCNR_N07_004 subclause 9.4.3.2 optional**
Ensure that the IUT in the Null call state N03 and CCNR Call Init state, to indicate that user B is busy and the network option "CCSB request retention" is set to yes,
sends a DISCONNECT message and enters the call state N12.

**CCNR_N07_005 subclause 9.4.3.2 optional**
Ensure that the IUT in the Null call state N3 and CCNR Call Init state, to indicate that user B is busy and the network option "CCSB request retention" is set to no,
sends a DISCONNECT message and a FACILITY message containing a Facility information element with a CCBSErase invoke component including the cCBSEraseReason parameter indicating "basic-call-failed"and enters the call state N12.

**CCNR_N07_006 subclause 9.4.3.2 optional**
Ensure that the IUT in the Null call state N7 and CCNR Call Init state, to indicate that user B rejected the call and the network option "CCSB request retention" is set to yes,
sends a DISCONNECT message and a FACILITY message containing a Facility information element with a CCBSErase invoke component including the cCBSEraseReason parameter indicating "basic-call-failed"and enters the call state N12.

**CCNR_N07_007 subclause 9.4.3.2 optional**
Ensure that the IUT in the Null call state N3 and CCNR Call Init state, on expiry of timer T-CCBS2,
sends a DISCONNECT message and a FACILITY message containing a Facility information element with a CCBSErase invoke component including the cCBSEraseReason parameter indicating "t-CCBS2-timeout"and enters the call state N12.

**CCNR_N07_008 subclause 9.4.3.2 optional**
Ensure that the IUT in the Null call state N3 and CCNR Call Init state, on receipt of a DISCONNECT message,
sends a RELEASE message and a FACILITY message containing a Facility information element with a CCBSErase invoke component including the cCBSEraseReason parameter indicating "basic-call-failed"and enters the call state N19.

#### 5.2.1.4.4 B free but A busy procedure

**CCNR_N08_001 subclause 9.4.5.1 mandatory**
Ensure that the IUT in the Null call state N00 and CCNR Activated state, and having determined that the served user is either busy or CCBS busy,
sends a FACILITY message containing a Facility information element with a CCBSFree invoke component including the cCBSEraseReason parameter indicating "basic-call-failed"and enters the call state N19.

#### 5.2.1.4.5 User A monitoring procedure

**CCNR_N09_001 subclause 9.4.6.1 mandatory**
Ensure that the IUT in the CCNR Activated state, to request the status of user A,
sends a FACILITY message with the dummy call reference containing a Facility information element with a CCBSStatusRequest invoke component and remains in the CCNR Activated state.

**CCNR_N09_002 subclause 9.4.6.1 mandatory**
Ensure that the IUT in the CCNR Activated state, having sent a FACILITY message with the dummy call reference containing a Facility information element with a CCBSStatusRequest invoke component, receiving a FACILITY message with the dummy call reference containing a Facility information element with a return result component indicating "free",
sends no message and remains in the CCNR Activated state.

**CCNR_N09_003 subclause 9.4.6.1 mandatory**
Ensure that the IUT in the CCNR Activated state, having sent a FACILITY message with the dummy call reference containing a Facility information element with a CCBSStatusRequest invoke component, receiving a FACILITY message with the dummy call reference containing a Facility information element with a return result component indicating "busy",
sends no message and remains in the CCNR Activated state.

**CCNR_N09_004 subclause 9.4.6.2 mandatory**
Ensure that the IUT in the CCNR Activated state, having sent a FACILITY message with the dummy call reference containing a Facility information element with a CCBSStatusRequest invoke component, on the expiry of timer T-CCBS1,
sends a FACILITY message with the dummy call reference containing a Facility information element with a CCBSErase invoke component indicating "normal-unspecified" and enters the CCNR Idle state.

**CCNR_N09_005 subclause 9.4.6.2 mandatory**
Ensure that the IUT in the CCNR Activated state, having sent a FACILITY message with the dummy call reference containing a Facility information element with a CCBSStatusRequest invoke component, receiving a FACILITY message with the dummy call reference containing a Facility information element with a reject component including the invoke identifier,
sends no message and remains in the CCNR Activated state.

#### 5.2.1.5 Call information retention

**CCNR_N10_001 subclause 9.6.1 mandatory**
Ensure that the IUT in call state N3 and the Retain Idle state, to provide the call information retention procedure,
sends an ALERTING message containing a Facility information element with a CallInfoRetain invoke component and enters call state N4 and the Retain Active state.

**CCNR_N10_002 subclause 9.6.1 mandatory**
Ensure that the IUT in the Retain Active state, on the expiry of timer T-Retention,
sends a FACILITY message with the dummy call reference containing a Facility information element with a EraseCallLinkageID invoke component and enters the Retain Idle state.

### 5.2.2 Procedures for interworking with private ISDNs

**Selection:** IUT supports T reference point procedures. PICS: R 3.2.

NOTE: The private network procedures use the bearer independent connection-oriented transport mechanism as well as the bearer related transport mechanism. Different Call References (CRs) are used to differentiate between the two mechanisms. In the following TPs, these are identified by a CR followed by a number:

CR1 = normal (bearer related) call reference of the original call;

CR2 = call reference used for bearer independent transport mechanism;

CR3 = normal (bearer related) call reference of the CCNR call.

The values of CR1, CR2 and CR3 may vary from one TP to another, but when they are used in the same TP their values are distinct if they exist at the same interface. The single call references are only mentioned where significant.

### 5.2.2.1 Procedures for the originating T reference point

**CCNR_N11_001 subclause 10.1.1 mandatory**
Ensure that the IUT in call state N3 for CR1, to indicate that the destination reached the alerting state,
sends an ALERTING message for CR1 containing a Facility information element with a CCBS-T-Available invoke component and enters call state N4 for CR1.

**CCNR_N11_002 subclause 10.1.2.1 optional**
Ensure that the IUT in call state N0 for CR1, having sent a CCBS-T-Available invoke component during a previous call attempt with CR1, and in call state N0 for CR2, on receipt of a REGISTER message for CR2 containing a Facility information element with a CCNR-T-Request invoke component including the retentionSupported parameter indicating "TRUE",
sends a FACILITY message for CR2 containing a Facility information element with a CCNR-T-Request return result component including the retentionSupported parameter indicating "TRUE" and enters call state N31 for CR2.

**Selection:** The IUT does support the CCNR request retention option. PICS: MC 4.

**CCNR_N11_003 subclause 10.1.2.1 optional**
Ensure that the IUT in call state N0 for CR1, having sent a CCBS-T-Available invoke component during a previous call attempt with CR1, and in call state N0 for CR2, on receipt of a REGISTER message for CR2 containing a Facility information element with a CCNR-T-Request invoke component including the retentionSupported parameter indicating "FALSE",
sends a FACILITY message for CR2 containing a Facility information element with a CCNR-T-Request return result component and enters call state N31 for CR2.

**Selection:** The IUT does NOT support the CCNR request retention option. PICS: NOT MC 4.

NOTE: the vale of retentionSupported parameter is not significant.

**CCNR_N11_004 subclause 10.1.2.2 mandatory**
Ensure that the IUT in call state N0 for CR1, having sent a CCBS-T-Available invoke component during a previous call attempt with CR1, and in call state N0 for CR2, on receipt of a REGISTER message for CR2 containing a Facility information element with a CCBS-T-Call invoke component (component different from CCNR-T-Request invoke),
sends a RELEASE message for CR2 containing a Cause information element with the cause value #29 "facility rejected" and enters call state N19 for CR2.

**CCNR_N11_005 subclause 10.1.2.2 mandatory**
Ensure that the IUT in call state N0 for CR1, having sent a CCBS-T-Available invoke component during a previous call attempt with CR1, and in call state N0 for CR2, on receipt of a REGISTER message for CR2 containing a Facility information element with a CCNR-T-Request invoke component and the CCNR supplementary service is not subscribed to,
sends a RELEASE message for CR2 containing a Facility information element with a CCNR-T-Request return error component indicating "notSubscribed" and enters call state N19 for CR2.

**CCNR_N11_006 subclause 10.1.2.2 mandatory**
Ensure that the IUT in call state N0 for CR1, having sent a CCBS-T-Available invoke component during a previous call attempt with CR1, and in call state N0 for CR2, on receipt of a REGISTER message for CR2 containing a Facility information element with a CCNR-T-Request invoke component and the CCNR supplementary is not available to the destination,
sends a RELEASE message for CR2 containing a Facility information element with a CCNR-T-Request return error component indicating "longTermDenial" and enters call state N19 for CR2.

**CCNR_N11_007 subclause 10.1.2.2 mandatory**
Ensure that the IUT in call state N0 for CR1, having sent a CCBS-T-Available invoke component during a previous call attempt with CR1, and in call state N0 for CR2, on receipt of a REGISTER message for CR2 containing a Facility information element with a CCNR-T-Request invoke component and the CCNR supplementary cannot be provided to the destination at this time,
sends a RELEASE message for CR2 containing a Facility information element with a CCNR-T-Request return error component indicating "shortTermDenial" and enters call state N19 for CR2.

**CCNR_N11_008 subclause 10.1.3.1 mandatory**
Ensure that the IUT in the CCNR Free state, with CR2 in call state N31, to indicate that the destination has become not busy and that the IUT is ready to accept a call,
sends a FACILITY message for CR2 containing a Facility information element with a CCBS-T-RemoteUserFree invoke component and remains in the call state N31 for CR2.

**CCNR_N11_009 subclause 10.1.3.2 mandatory**
Ensure that the IUT in the CCNR Free state, with CR2 in call state N31, having sent a FACILITY message with CR2 containing a Facility information element with a CCBS-T-RemoteUserFree invoke component, on receipt of a FACILITY message with CR2 containing a Facility information element with a CCBS-T-RemoteUserFree reject component,
sends a RELEASE for CR2 with cause #31 and enters state N19 for CR2.

**CCNR_N11_010 subclause 10.1.4.1 mandatory**
Ensure that the IUT in the CCNR Free state, with CR2 in call state N31, on receipt of a FACILITY message with CR2 containing a Facility information element with a CCBS-T-Suspend invoke component,
takes no protocol actions and remains in call state N31 for CR2.

**CCNR_N11_011 subclause 10.1.5.1 mandatory**
Ensure that the IUT in the CCNR Free state, with CR2 in call state N31, on receipt of a FACILITY message with CR2 containing a Facility information element with a CCBS-T-Resume invoke component,
takes no protocol actions and remains in call state N31 for CR2.

**CCNR_N11_012 subclause 10.1.6.1 mandatory**
Ensure that the IUT in the CCNR Free state, with CR3 in call state N00 and with CR2 in call state N31, on receipt of a SETUP with CR3 using the call establishment information used in the original call attempt and including a Facility information element with a CCBS-T-Call invoke component,
sends a CALL PROCEEDING message for CR3 and enters to the call state N03 for CR3.

**CCNR_N11_013 subclause 10.1.6.2 mandatory**
Ensure that the IUT in the CCNR Init state, with CR3 in call state N03 and with CR2 in call state N31, to indicate that the call failed at the destination side due to any reason other than the user at that side is busy,
sends a DISCONNECT message for CR3 to clear the attempted call and a RELEASE message for CR2 to clear the signalling connection and enters call state N12 for CR3 and call state N19 for CR2.

**CCNR_N11_014 subclause 10.1.6.2 mandatory**
Ensure that the IUT in the CCNR Free state, with CR2 in call state N31, on expiry of timer T-CCBS6
sends a RELEASE message for CR2 and enters call state N19.

### 5.2.2.2 Procedures for the destination T reference point

**CCNR_N12_001 subclause 10.2.2.1 mandatory**
Ensure that the IUT in the CCNR Idle state, with CR1 in call state N9, on receipt of an ALERTING message containing a Facility information element with a CCBS-T-Available invoke component,
sends no message and enters call state N7 for CR1.

**CCNR_N12_002 subclause 10.2.2.1 mandatory**
Ensure that the IUT in call state N0 for CR1, having received a CCBS-T-Available invoke component during a previous call attempt with CR1 and in the CCNR Idle state, to setup the signalling connection with the private network and to request the activation of CCNR,
sends a REGISTER message for CR2 containing a Facility information element with a CCNR-T-Request invoke component including the retentionSupported set to TRUE and enters call state N31 for CR2.

**Selection:** CCBS request retention option supported. PICS: MC 6.

**CCNR_N12_003 subclause 10.2.2.1 mandatory**
Ensure that the IUT in call state N0 for CR1, having received a CCBS-T-Available invoke component during a previous call attempt with CR1 and in the CCNR Idle state, to setup the signalling connection with the private network and to request the activation of CCNR,

sends a REGISTER message for CR2 containing a Facility information element with a CCNR-T-Request invoke component including the retentionSupported set to FALSE and enters call state N31 for CR2.

**Selection:** CCBS request retention option NOT supported. PICS: NOT MC 6.

**CCNR_N12_004 subclause 10.2.2.1 mandatory**
Ensure that the IUT in call state N31 for CR2, having sent a CCBS-T-Request invoke component, on receipt of a FACILITY message with CR2 containing a Facility information element with a CCNR-T-Request return result component,

sends no message and remains in call state N31.

**CCNR_N12_005 subclause 10.2.2.2 mandatory**
Ensure that the IUT in call state N31 for CR2 , having sent a CCBS-T-Request invoke component, on receipt of a FACILITY message with CR2 containing a Facility information element with a reject component,

sends a RELEASE message for CR2 with cause #31 and enters call state N19.

**CCNR_N12_006 subclause 10.2.3.1 mandatory**
Ensure that the IUT in the CCBS Activated state, with CR3 in call state N00 and with CR2 in call state N31, on receipt of a FACILITY message with CR2 containing a Facility information element with a CCBS-T-RemoteUserFree invoke component and the IUT does not need to suspend CCBS,

sends a SETUP message for CR3 including a Facility information element with a CCBS-T-Call invoke component and enters the call state N6 for CR3 and remains in call state N31 for CR2.

**CCNR_N12_007 subclause 10.2.4.1 mandatory**
Ensure that the IUT in the CCBS Activated state, in call state N31 for CR2, on receipt of a FACILITY message for CR2 containing a Facility information element with a CCBS-T-RemoteUserFree invoke component, to request the suspension of the CCBS request,

sends a FACILITY message for CR2 containing a Facility information element with a CCBS-T-Suspend invoke component.

**CCNR_N12_008 subclause 10.2.4.2 mandatory**
Ensure that the IUT in the CCBS Free state, in call state N31 for CR2, having sent a FACILITY message for CR2 containing a Facility information element with a CCBS-T-Suspend invoke component, on receipt of a FACILITY message for CR2 containing a Facility information element with a reject component,

sends a RELEASE for CR2 and cause #31 and moves to call state N19 for CR2.

**CCNR_N12_009 subclause 10.2.5.1 mandatory**
Ensure that the IUT in the CCBS Free state, in call state N31 for CR2, having suspended CCBS, to request the resumption of the CCBS request,

sends a FACILITY message for CR2 containing a Facility information element with a CCBS-T-Resume invoke component and remains in call state N31 for CR2.

**CCNR_N12_010 subclause 10.2.5.2 mandatory**
Ensure that the IUT in the CCBS Free state, in call state N31 for CR2, having sent a FACILITY message for CR2 containing a Facility information element with a CCBS-T-Resume invoke component, on receipt of a FACILITY message for CR2 containing a Facility information element with a reject component,

sends a RELEASE for CR2 and cause #31 and enters call state N19 for CR2.

**CCNR_N12_011 subclause 10.2.6.1 mandatory**
Ensure that the IUT in the CCBS Free state in call state N31 for CR2, to initiate establishment of the CCBS call,

sends a SETUP for CR3 including a Facility information element with a CCBS-T-Call invoke component and enters call state N06 for CR3.

**CCNR_N12_012 subclause 10.2.6.2 mandatory**
Ensure that the IUT in the CCBS Free state, in call state N01 for CR3 and with CR2 in call state N31, having sent a SETUP for CR3 with a CCBS-T-Call invoke component, on receipt of a RELEASE COMPLETE message for CR3 with cause indicating call failed before reaching destination,

sends a RELEASE message for CR2 and enters N19 for CR2 and N00 for CR3.

**CCNR_N12_013 subclause 10.2.6.2 mandatory**
Ensure that the IUT in the CCBS Activated state, in call state N10 for CR3 and in call state N31 for CR2, on expiry of T-CCBS5,
sends a RELEASE message for CR2 and enters call state N19 for CR2.

**CCNR_N12_014 subclause 10.2.7.1 mandatory**
Ensure that the IUT in the CCBS Activated state, in call state N31 for CR2, in order to deactivate the CCBS request,
sends a RELEASE message for CR2 with cause #31 and enters call state N19 for CR2.

# 6 Compliance

An ATS which complies with this TSS&TP specification shall:

a) consist of a set of test cases corresponding to the set or to a subset of the TPs specified in clause 6;

b) use a TSS which is an appropriate subset of the whole of the TSS specified in clause 4;

c) use the same naming conventions for the test groups and test cases;

d) maintain the relationship specified in clause 5 between the test groups and TPs and the entries in the PICS proforma to be used for test case deselection;

e) comply with ISO/IEC 9646-2 [4].

In the case of a) or b) above, a subset shall be used only where a particular Abstract Test Method (ATM) makes some TPs untestable. All testable TPs from clause 5 shall be included in a compliant ATS.

# 7 Requirements for a comprehensive testing service

As a minimum the Remote test method, as specified in ISO/IEC 9646-2 [4], shall be used by any organization claiming to provide a comprehensive testing service for network equipment claiming conformance to EN 301 065-1 [1].

# History

| Document history | | | | |
|---|---|---|---|---|
| V1.1.1 | January 1998 | Public Enquiry | PE 9822: | 1998-01-30 to 1998-05-29 |
| V1.1.2 | August 1998 | Vote | V 9840: | 1998-08-04 to 1998-10-02 |
| V1.1.3 | October 1998 | Publication | | |
| | | | | |
| | | | | |

ISBN 2-7437-2601-6
Dépôt légal : Octobre 1998