

Implementation of
ISO/IEC 10739-1:1994

**Information
technology —
Open Systems
Interconnection —
Conformance test suite
for ISO 9041-1 —
Virtual terminal basic
class protocol —**

**Part 1: Test suite structure and test
purposes**

Committees responsible for this British Standard

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- British Telecommunications plc
- CCTA (Government Centre for Information Systems)
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National foreword

This British Standard reproduces verbatim ISO/IEC 10739-1:1994 and implements it as the UK national standard.

This British Standard is published under the direction of the Information Systems Technology Standards Policy Committee whose Technical Committee IST/21 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international committee any enquiries on interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the ISO/IEC title page, pages ii to iv, pages 1 to 175 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

**Information technology — Open Systems
Interconnection — Conformance test suite
for ISO 9041-1 — Virtual terminal basic
class protocol —**

Part 1:

Test suite structure and test purposes

*Technologies de l'information — Interconnexion de systèmes ouverts
(OSI) — Suite de tests de conformité pour l'ISO 9041-1 — Protocole de
classe de base de terminal virtuel —*

Partie 1: Structure de la suite de tests et objets des tests



Reference number
ISO/IEC 10739-1:1994(E)

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) together form a system for worldwide standardization as a whole. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for approval before their acceptance as International Standards. They are approved in accordance with procedures requiring at least 75 % of the national bodies voting.

International Standard ISO/IEC 10739-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee 21, *Information, retrieval, transfer and management for open systems interconnection (OSI)*.

Annex A forms an integral part of this part of ISO/IEC 10739. Annex B, Annex C and Annex D are for information only.

Introduction

This part of this International Standard specifies a test suite structure and a set of test purposes for use by test suite specifiers as the basis for all standardised conformance test suites needed to evaluate conformance to ISO 9041, the Basic Class Virtual Terminal (BCVT) protocol.

NOTE More than one standardized conformance test suite for the BCVT protocol may be needed in order to test BCVT protocol implementations in different application contexts or by different test methods.

A fundamental objective of the related standardised conformance test suites is to establish uniform conformance testing and unambiguous evaluation procedures for checking the ability of a BCVT protocol implementation to operate according to ISO 9041. The standardisation of these test suites should lead to comparability and wide acceptance of the test results produced by different test laboratories, and therefore minimise repeated conformance testing of the same BCVT protocol implementation.

The conformance test suites based on this part of this International Standard are designed for use by

- a) test laboratories which provide a conformance testing service for the BCVT protocol;
- b) test realisers which provide a means of testing to be used by such test laboratories; and
- c) implementors of the BCVT protocol.

The purpose of conformance testing is to increase the probability that different implementations are able to interwork, although conformance testing alone cannot give a guarantee of interworking. Conformance testing increases the confidence that each implementation conforms to the protocol specification, by establishing that it has the required capabilities and that its behaviour conforms to the protocol specification in representative instances of communication.

1 Scope

This part of ISO/IEC 10739 specifies a test suite structure and test purposes for the whole of the BCVT protocol as defined in ISO 9041.

This part of ISO/IEC 10739 specifies the relationship between the elements of the test suite structure (test groups and test cases) and the Protocol Implementation Conformance Statement (PICS) proforma ISO/IEC 9041-2 which is to be used in test case selection.

This part of ISO/IEC 10739 applies to conformance test suites for testing BCVT protocol implementations which operate over a connection-oriented Association Control Service Element (ACSE) and Presentation services (ISO 8649 and ISO 8822) and which claim conformance to ISO 8650 and ISO 8823 respectively.

This part of ISO/IEC 10739 does not specify how conformance tests are to be realised or used, nor how the test results are to be presented or used.

This part of ISO/IEC 10739 does not include a general assessment of performance, reliability or robustness of relevant protocol implementations, nor an assessment of the design of the protocol itself.

2 Compliance

A generic or abstract test suite which complies with this part of ISO/IEC 10739 shall

- a) consist of a set of test cases corresponding to the set or a subset of the test purposes specified in clauses **10** to **14** and which includes provision for a default VTE-profile as defined in Annex A;
- b) use a test suite structure which is an appropriate subset (or the whole) of the test suite structure specified in clause **8**.
- c) name its test groups and test cases using the naming conventions specified in clause **9** in such a way that the test group and test case names used in clauses **10** to **14** are used whenever relevant;
- d) maintain the relationships specified in clauses **10** to **14** between the chosen test purposes and the entries in the PICS proforma to be used for test case selection; and
- e) comply with ISO 9646-2 and ISO 9646-3.

3 Normative references

The following standards contain provisions which, through references in the text constitute provisions of this part of ISO/IEC 10739. At the time of publication, the editions indicated are valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 10739 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registered of currently valid International Standards.

ISO 8649:1988, *Information processing systems — Open Systems Interconnection — Service definition for the Association Control Service Element*.

ISO 8650:1988, *Information processing systems — Open Systems Interconnection — Protocol specification for the Association Control Service Element*.

ISO 8822:1988, *Information processing systems — Open Systems Interconnection — Connection oriented presentation service definition*.

ISO 8823:1988, *Information processing systems — Open Systems Interconnection — Connection oriented presentation protocol specification*.

ISO 9040:1990, *Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Service*.

ISO 9041-1:1990, *Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Protocol — Part 1: Specification*.

ISO/IEC 9041-2:1993, *Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Protocol — Part 2: Protocol Implementation Conformance Statement (PICS Proforma)*.

ISO/IEC 9646-1:1991, *Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 1: General concepts*.

ISO/IEC 9646-2:1991, *Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 2: Abstract test suite specification*.

ISO/IEC 9646-3:1991, *Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 3: The tree and tabular combined notation*.

4 Definitions

4.1 BCVT definitions

For the purposes of this part of ISO/IEC 10739, the following terms are used which are defined in ISO 9040.

- a) A-mode
- b) S-mode
- c) VTE-profile

4.2 Conformance testing methodology and framework definitions

For the purposes of this part of ISO/IEC 10739, the following terms are used which are defined in ISO/IEC 9646-1.

- a) basic interconnection testing;
- b) behaviour testing;
- c) capability testing;
- d) conformance testing;
- e) conformance test suite;

- f) dynamic conformance requirements;
- g) implementation under test;
- h) inopportune test event;
- i) protocol implementation conformance statement (PICS);
- j) PICS proforma;
- k) static conformance statement;
- l) syntactically invalid test event;
- m) test group;
- n) test purpose; and
- o) test suite.

5 Abbreviations

For the purposes of this part of ISO/IEC 10739, the following abbreviations apply.

ASP	Abstract Service Primitive
BCVT	Basic Class Virtual Terminal
IUT	Implementation Under Test
LT	Lower Tester
PICS	Protocol Implementation Conformance Statement
PCO	Point of Control and Observation
PIXIT	Protocol Implementation Extra Information for Testing
SUT	System Under Test
UT	Upper Tester

6 Relationship to VT functional standards

ISO 9041 conformance states that an implementation shall support either the A-mode or the S-mode default VTE-profile. These profiles provide for very simple functionality and are specified to ensure that any two conforming VT implementations supporting the same mode will be able to interoperate. Annex A identifies subsets of test groups and test cases within clauses 10 to 14 which apply to the two default VTE-profiles.

Implementations shall support at least one default profile and one or more standardised VTE-profiles defined in VT ISPs. VT ISPs have their own conformance requirements and their own conformance test specifications. The form of the compliance requirements of clause 5 allow ISP conformance tests to draw upon sets of tests defined in this part of ISO/IEC 10739. In addition, it is expected that ISP conformance test specifications will include tests that are outside the scope of this part of ISO/IEC 10739 which relate to the user interface.

It should be noted that it will be unlikely to be possible to exercise an implementation using the complete test suite structure as specified in this part of ISO/IEC 10739 unless that implementation supports every functional unit and every value of every VTE-parameter.

All functional units supported shall be tested using the test suites specified in this standard for the respective functional units. In addition, other features supported (that are not functional units — eg delivery control) shall be tested with the appropriate (specified) test suites contained herein. To determine the functionality to be tested, refer to the implementation under test (IUT) PICS.

NOTE If a PICS shows that a mandatory feature is omitted, the test case relevant to that feature is not executed; the conformance test report indicates clearly any such instances of non-conformance.

7 Testing methodology

7.1 Introduction

The testing methodology used in this part of ISO/IEC 10739 complies with the requirements of ISO/IEC 9646-2.

7.2 Test selection

The structure of the test suite is organised to make possible the selection of the appropriate test case structure according to the contents of the PICS.

7.3 Verdicts

Verdicts assigned by each abstract test case are determined, on the basis of the IUT's ability

- a) to behave in accordance with the requirements of the BCVT protocol; and
- b) to support the capabilities and parameter values listed in the PICS.

Conformance assessment is based on the individual verdicts, the BCVT protocol standard, and the IUT's PICS.

7.4 Test suite coverage

Test purposes are specified and structured according to clause 10.2 (test suite structure), clause 10.3 (test purposes) and clause 10.4 (coverage) of ISO/IEC 9646-2, to obtain the appropriate coverage of the possible event/state, parameter values, and valid/syntactically invalid/inopportune variations.

7.5 Test methods

It is probable that host implementations will have exposed interfaces which may not reflect exactly the VT abstract service interface. This would not allow a distributed test method to be used as defined in ISO/IEC 9646-1. The remote test method is the recommended method to be used (see Figure 1).

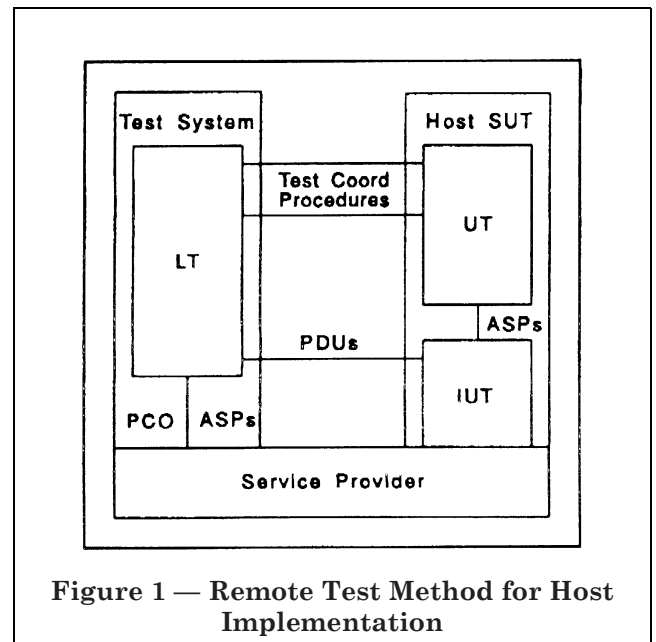


Figure 1 — Remote Test Method for Host Implementation

In some cases, it is probable that terminal implementations will have exposed interfaces which may not reflect exactly the VT abstract service interface. In these cases the remote test method is applicable. It is much more likely that such an exposed interface will not be accessible in a real terminal implementation, but the remote test method is still applicable. In this case, the actual VT service primitives received will have to be deduced from observation of events at the user interface to the terminal by a human being. The behaviour of the IUT as observed at the user interface to the terminal has to be consistent with the receipt of such a primitive. Similarly, specific service primitives will be generated by suitable input events at the user interface to the terminal (see Figure 2). A testing laboratory will need a definition of the mapping of input and output events at the user interface to the terminal on to service primitives which can be provided in a PIXIT for the terminal implementation in question.

Some terminal implementations will provide an exposed mapping from the IUT on to a real terminal (eg the data stream running on the cable to the real terminal is proprietary). Any such mapping is outside the scope of the VT standards and is not standardised. Using a point of control and observation at such an interface is no more satisfactory than using one at the user interface to the terminal and in general it will be more difficult to realise. It is therefore recommended that the PCO should be at the user interface to the terminal.

Annex D describes test methods in more detail.

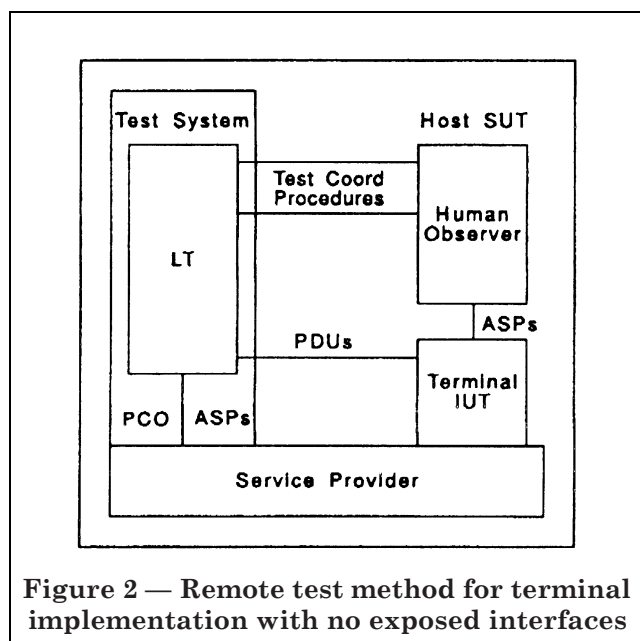


Figure 2 — Remote test method for terminal implementation with no exposed interfaces

7.6 Preambles and postambles

The test purposes in clauses 12 to 14 make reference to preambles and postambles as guidance to the abstract test suite specifier as to how to create the initial environment required to perform the test group and as to how to reach a stable state (quiescent) after the test group. As such, the preambles and postambles are informative and are included in Annex C.

8 Test suite structure

The test suite for the BCVT protocol consists of test groups and test cases. Each test case has a narrowly defined purpose. Within the test suite, nested test groups are used to provide a logical ordering of the test cases. Test groups may be nested to an arbitrary depth. They may be used to aid planning, development, understanding or execution of the test suite.

The test suite consists of three main test groups:

- Basic Interconnection Tests, which are intended to determine that sufficient functionality exists for interconnection to be established and released between the real tester and the System Under Test (SUT). This test group focuses on the ACSE establishment/release and negotiation of a VT implementation.

b) Capability Tests, which are used to verify that the observable capabilities of the BCVT protocol implementations are valid with respect to the static conformance requirements stated in 13.2 of ISO 9041-1, and with respect to the PICS. Examples of observable capabilities are: data transfer, delivery control, error handling (e.g. Break).

c) Behaviour Tests, which test the extent to which the implementation meets the dynamic conformance requirements specified in 13.1 of ISO 9041-1. The behaviour group of tests is further divided into tests that check the IUT's response to:

- valid state/event protocol behaviour,
- parameter variations,
- parameter combinations, and
- object (eg display, control, RIO) updates

These tests provide a detailed evaluation of the features which are claimed to be supported in the PICS.

The test suite contains two further test groups:

- Semantically Invalid Behaviour Tests, which test the ability of the IUT to detect instances of invalid protocol behaviour and take the specified action.
- Inopportune Behaviour Tests, which test the response of the IUT to valid BCVT protocol data units which are inopportune either because of the prevailing state of the IUT or as a result of earlier negotiations.

These tests provide a detailed evaluation of the detection and response to behaviour which is not valid protocol. Each of these test groups is further divided into a number of lower level test groups.

8.1 Overview

The structure of the BCVT test suite is shown in Figure 3.

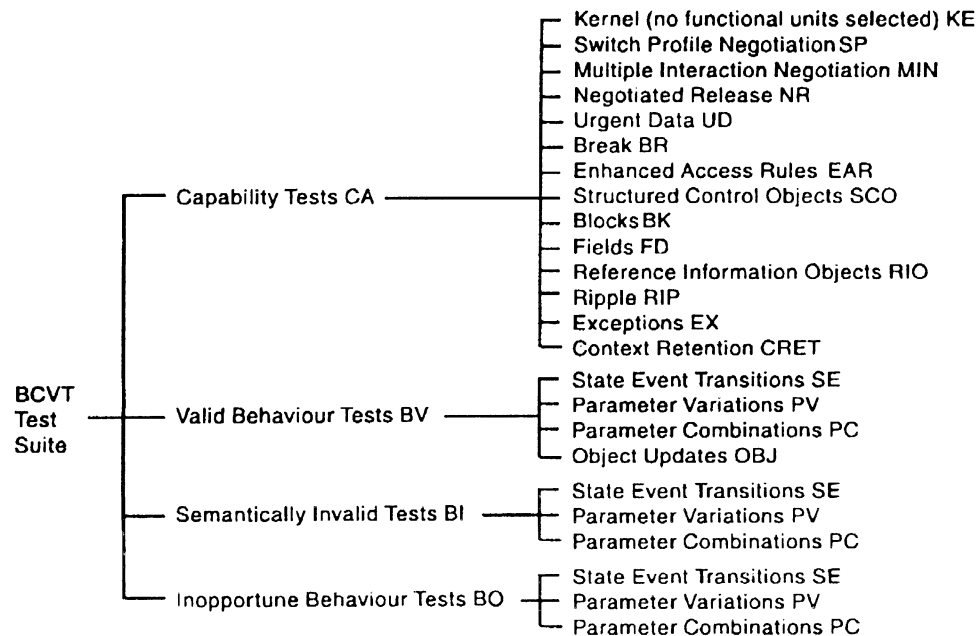


Figure 3 — Test Suite Structure

9 Layout Conventions

This clause describes the proformas that are used for test group purposes. Two proformas are described below:

- a) The first proforma is used for a test group which has other test groups below it. It describes the purpose of the group and lists the test groups below it. The proforma takes the form:

V.W.X.Y AA/BB/FUNCTION (FN)

[Reference: ISO 9041]

Test group objective:

Test groups:

1. Function One (F1).
2. Function Two (F2).
- .
- n. Function n (Fn).

The first item (V.W.X.Y) is mandatory and is the formal clause number of the test group in this part of ISO/IEC 10739.

The second item [AA/BB/FUNCTION (FN)] is mandatory and is the symbolic name of the test group. Note that the final component of the name is given in full, followed by an abbreviation.

The third item is an optional reference to the relevant clause in the base standard. If no such reference is appropriate for the test group, this item is omitted.

The fourth item is a mandatory natural language statement of the test group purpose.

The fifth item consists of references to the test groups contained within the group at the next level down.

- b) The second proforma is used for a test group which has only test cases below it. It describes the purpose of the group and then lists the test case purposes that make up the group. The proforma takes the form:

V.W.X.Y AA/BB/FUNCTION (FN)

[Reference: ISO 9041]

Test group objective:

Test purposes:

- 1.
- 2.
- .
- .
- n.

The first item (V.W.X.Y) is mandatory and is the formal clause number of the test group in this part of ISO/IEC 10739.

The second item [AA/BB/FUNCTION (FN)] is mandatory and is the symbolic name of the test group. Note that the final component of the name is given in full, followed by an abbreviation.

The third item is an optional reference to the relevant clause in the base standard. If no such reference is appropriate for the test group, this item is omitted.

The fourth item is a mandatory natural language statement of the test group purpose.

The fifth item consists of a list of test case purposes in natural language that are part of the test group. A test case purpose may contain a note which may indicate the state which the protocol machine is left as the result of the execution of this test purpose. It is of the form:

NOTE <text>

This note is informative.

10 Basic interconnection tests

Test group objective: To check that sufficient functionality exists for VT associations to be established, to be released and for data to be transferred between the LT and the IUT.

Test purposes:

1. See CA/KE/AC of 11.1.1
2. See CA/KE/DAT of 11.1.2

11 Capability tests (CA)

Test group objective: To check that the IUT is able to manage VT functional units. The purpose of these tests is to establish whether a functional unit is available and if so, a representative sample of the capabilities of that functional unit is exercised.

Test groups:

1. Kernel (no functional units selected) (KE)
2. Switch Profile Negotiation (SP)
3. Multiple Interaction Negotiation (MIN)
4. Negotiated Release (NR)
5. Urgent Data (UD)
6. Break (BR)
7. Enhanced Access Rules (EAR)
8. Structured Control Objects (SCO)
9. Blocks (BK)
10. Fields (FD)
11. Reference Information Objects (RIO)
12. Ripple (RIP)
13. Exceptions (EX)
14. Context retention (CRET)

11.1 CA/kernel (no functional units selected) (KE)

Test group objective: To check the capability to support services of the Kernel facilities.

Test groups:

1. Association Control (AC)
2. Data Transfer (DAT)
3. Delivery Control (DEL)
4. High Priority Data (HPD)
5. Urgent Priority Data (UPD)

11.1.1 CA/KE/association control (AC)

References: ISO 9041-1 Tables 5 to 8

Test group objective: To check the capability to support association control facilities.

Test purposes:

1. check that the IUT can receive a valid VT-ASSOCIATE-REQ pdu and respond with a valid VT-ASSOCIATE-RESP pdu accepting the VT-association; check that the IUT can receive a valid VT-RELEASE-REQ pdu and respond with a valid VT-RELEASE-RESP pdu;
check that the IUT returns to the idle phase;
2. check that the IUT can send a valid VT-ASSOCIATE-REQ pdu and receive a valid VT-ASSOCIATE-RESP pdu accepting the VT-association;
check that the IUT can send a valid VT-RELEASE-REQ pdu and receive a valid VT-RELEASE-RESP pdu;
check that the IUT returns to the idle phase;
3. check that the IUT can receive a valid VT-ASSOCIATE-REQ pdu and respond with a valid VT-ASSOCIATE-RESP pdu refusing the VT-association;
check that the IUT returns to the idle phase;
4. check that the IUT can send a valid VT-ASSOCIATE-REQ pdu and receive a valid VT-ASSOCIATE-RESP pdu refusing the VT-association;
check that the IUT returns to the idle phase;
5. a VT-association is established — check that IUT can issue a valid VT-U-ABORT pdu and enter the idle phase;
6. a VT-association is established — check that the IUT can receive a valid VT-U-ABORT pdu and enter the idle phase;
7. a VT-association is established — check that the IUT can issue a valid VT-P-ABORT pdu when in receipt of an invalid pdu and enter the idle phase;

8. a VT-association is established — check that the IUT can receive a valid VT-P-ABORT pdu and enter the idle phase.

11.1.2 CA/KE/data transfer (DAT)

Reference: ISO 9041-1 Table 9

Test group objective: To check the capability to support data transfer in both directions and in S-mode to check the capability to manage the VT-token. Delivery Control is set to “no-delivery-control”

Test purposes:

1. (S-mode only) a VT-association exists in the Data Handling phase with the VT-token at the LT;
check that the IUT can receive a valid VT-DATA pdu (text operation);
check that the IUT can issue a valid VT-REQUEST-TOKEN pdu;
check that the IUT can receive a valid VT-GIVE-TOKENS pdu;
check that the IUT can send a valid VT-DATA pdu (text operation);
check that the IUT can send a valid VT-GIVE-TOKENS pdu;
2. (A-mode only) a VT-association exists in the Data Handling phase;
check that the IUT can receive a valid VT-DATA pdu (text operation);
check that the IUT can send a valid VT-DATA pdu (text operation).

11.1.3 CA/KE/delivery control (DEL)

Reference: ISO 9041-1 Table 13

Test group objective: To check the capability to support delivery control in both directions.

Test purposes:

1. (S-mode only) a VT-association exists in the Data Handling phase with simple or quarantined delivery control and with the VT-token at the LT;
check that the IUT can receive a valid VT-DATA pdu (text operation) followed by a valid VT-DELIVER pdu;
check that the IUT can receive a valid VT-DATA pdu (text operation) and can respond to a valid VT-DELIVER pdu specifying Ack with a valid VT-ACK-RECEIPT pdu;
check that the IUT can respond to a valid VT-GIVE-TOKEN pdu by sending a valid VT-DATA pdu (text operation) followed by a valid VT-DELIVER pdu;

check that the IUT can send a valid VT-DATA pdu (text operation) followed by a valid VT-DELIVER pdu specifying ACK and then receive a valid VT-ACK-RECEIPT pdu;

2. (A-mode only) a VT-association exists in the Data Handling phase with normal or quarantined delivery control;
check that the IUT can receive a valid VT-DATA pdu (text operation) followed by a valid VT-DELIVER pdu;
check that the IUT can receive a valid VT-DATA pdu (text operation) and can respond to a valid VT-DELIVER pdu specifying Ack with a valid VT-ACK-RECEIPT pdu;
check that the IUT can send a valid VT-DATA pdu (text operation) followed by a valid VT-DELIVER pdu;
check that the IUT can send a valid VT-DATA pdu (text operation) followed by a valid VT-DELIVER pdu specifying ACK and then receive a valid VT-ACK-RECEIPT pdu.

11.1.4 CA/KE/high priority data (UPD)

Reference: ISO 9041-1 Table 11

Test group objective: To check the capability to support high priority data transfer in both directions.

Test purposes:

1. (S-mode only) a VT-association exists in Data Handling phase with a VTE containing a high priority CO which can be accessed by the LT (if necessary the VT-token must be held);
check that the IUT can receive a valid VT-HIGH-PRI-DATA pdu to update the CO;
2. (S-mode only) a VT-association exists in Data Handling phase with a VTE containing a high priority CO which can be accessed by the IUT (if necessary the VT-token must be held);
check that the IUT can send a valid VT-HIGH-PRI-DATA to update the CO;
3. (A-mode only) a VT-association exists in Data Handling phase with a VTE containing a high priority CO which can be accessed by the LT;
check that the IUT can receive a valid VT-HIGH-PRI-DATA pdu to update the CO;
4. (A-mode only) a VT-association exists in Data Handling phase with a VTE containing a high priority CO which can be accessed by the IUT;
check that the IUT can send a valid VT-HIGH-PRI-DATA to update the CO.

11.1.5 CA/KE/urgent priority data (UPD)

Reference: ISO 9041-1 Table 12

Test group objective: To check the capability to support urgent priority data transfer.

Test purposes:

1. (S-mode only) a VT-association exists in Data Handling phase with a VTE containing an urgent priority CO which can be accessed by the LT (if necessary the VT-token must be held);
check that the IUT can receive a VT-URGENT-DATA pdu to update the CO;
2. (S-mode only) a VT-association exists in Data Handling phase with a VTE containing an urgent priority CO which can be accessed by the IUT (if necessary the VT-token must be held);
check that the IUT can send a VT-URGENT-DATA pdu to update the CO;
3. (A-mode only) a VT-association exists in Data Handling phase with a VTE containing an urgent priority CO which can be accessed by the LT;
check that the IUT can receive a VT-URGENT-DATA pdu to update the CO;
4. (A-mode only) a VT-association exists in Data Handling phase with a VTE containing an urgent priority CO which can be accessed by the IUT;
check that the IUT can send a VT-URGENT-DATA pdu to update the CO.

11.2 CA/switch profile negotiation (SP)

Reference: ISO 9041-1 Table 18

Test group objective: To check the capability to support the Switch Profile functional unit.

Test purposes:

1. (S-mode only) a VT-association exists in the Data Handling phase with the Switch Profile functional unit having been selected and with the VT-token held by the LT;
check that the IUT can respond to a valid VT-SWITCH-PROFILE-REQ pdu with a valid VT-Switch-PROFILE-RESP pdu;
check that the IUT re-enters the Data Handling phase;
check that the IUT can respond to a valid VT-GIVE-TOKEN pdu by sending a valid VT-Switch-PROFILE-REQ pdu and then receive a valid VT-SWITCH-PROFILE-RESP pdu;
check that the IUT re-enters the Data Handling phase;

2. (A-mode only) a VT-association exists in the Data Handling phase with the Switch Profile functional unit having been selected;
check that the IUT can respond to a valid VT-Switch-PROFILE-REQ pdu with a valid VT-Switch-PROFILE-RESP pdu;
check that the IUT re-enters the Data Handling phase;
check that the IUT can send a valid VT-SWITCH-PROFILE-REQ pdu and then receive a valid VT-SWITCH-PROFILE-RESP pdu;
check that the IUT re-enters the Data Handling phase.

11.3 CA/multiple interaction negotiation (MIN)

References: ISO 9041-1 Table 20, 21, 22

Test group objective: To check the capability to support the Multiple Interaction Negotiation functional unit.

Test purposes:

1. (S-mode only) a VT-association exists with the Multiple Interaction functional unit having been selected and the VT-token held by the LT;
check that the IUT can respond to a valid VT-START-NEG-REQ pdu by sending a valid VT-START-NEG-RESP pdu to enter the Negotiation Active phase;
check that the IUT can respond to valid VT-NEG-INVITE and VT-GIVE-TOKEN pdus by sending valid VT-NEG-OFFER and VT-GIVE-TOKEN pdu;
check that the IUT can then receive a valid VT-NEG-REJECT pdu;
check that the IUT can respond to valid VT-NEG-OFFER and VT-GIVE-TOKEN pdus by sending valid VT-NEG-OFFER and VT-GIVE-TOKEN pdu;
check that the IUT can then receive a valid VT-NEG-ACCEPT pdu;
check that the IUT can respond to a valid VT-END-NEG-REQ pdu by sending a valid VT-END-NEG-RESP pdu accepting the new VTE;
check that the IUT has re-entered the Data Handling phase;
2. (S-mode only) a VT-association exists with the Multiple Interaction functional unit having been selected and the VT-token held by the IUT;

- check that the IUT can send a valid VT-START-NEG-REQ pdu and then receive a valid VT-START-NEG-RESP pdu in response;
- check that the IUT can send valid VT-NEG-INVITE and VT-GIVE-TOKEN pdus and then receive valid VT-NEG-OFFER and VT-GIVE-TOKEN pdus in response;
- check that the IUT can then send a valid VT-NEG-REJECT pdu;
- check that the IUT can send valid VT-NEG-OFFER and VT-GIVE-TOKEN pdus and then receive a valid VT-NEG-ACCEPT pdu in response;
- check that the IUT can send a valid VT-END-NEG-REQ pdu and receive a valid VT-END-NEG-RESP pdu in response accepting the new VTE;
- check that the IUT has re-entered the Data Handling phase;
3. (A-mode only) a VT-association exists with the Multiple Interaction functional unit having been selected;

check that the IUT can respond to a valid VT-START-NEG-REQ pdu by sending a valid VT-START-NEG-RESP pdu to enter the Negotiation Active phase;

check that the IUT can respond to a valid VT-NEG-INVITE pdu by sending a valid VT-NEG-OFFER pdu;

check that the IUT can then receive a valid VT-NEG-REJECT pdu;

check that the IUT can respond to a valid VT-NEG-OFFER pdu by sending a valid VT-NEG-OFFER pdu;

check that the IUT can then receive a valid VT-NEG-ACCEPT pdu;

check that the IUT can respond to a valid VT-END-NEG-REQ pdu by sending a valid VT-END-NEG-RESP pdu accepting the new VTE;

check that the IUT has re-entered the Data Handling phase;
 4. (A-mode only) a VT-association exists with the Multiple Interaction functional unit having been selected;

check that the IUT can send a valid VT-START-NEG-REQ pdu and then receive a valid VT-START-NEG-RESP pdu in response;

check that the IUT can send a valid VT-NEG-INVITE pdu and then receive a valid VT-NEG-OFFER pdu in response;

check that the IUT can then send a valid VT-NEG-REJECT pdu;

check that the IUT can send a valid VT-NEG-OFFER pdu and then receive a valid VT-NEG-ACCEPT pdu in response;

check that the IUT can send a valid VT-END-NEG-REQ pdu and receive a valid VT-END-NEG-RESP pdu in response accepting the new VTE;

check that the IUT has re-entered the Data Handling phase.
- check that the IUT can then send a valid VT-NEG-REJECT pdu;
- check that the IUT can send a valid VT-NEG-OFFER pdu and then receive a valid VT-NEG-ACCEPT pdu in response;
- check that the IUT can send a valid VT-END-NEG-REQ pdu and receive a valid VT-END-NEG-RESP pdu in response accepting the new VTE;
- check that the IUT has re-entered the Data Handling phase.

11.4 CA/negotiated release (NR)

Reference: ISO 9041-1 Table 7

Test group objective: To check the capability to support the Negotiated Release functional unit.

Test purposes:

1. (S-mode only) a VT-association exists in the Data Handling state with the Negotiated Release functional unit having been selected and with the VT-token held by the LT;

check that the IUT can receive a valid VT-RELEASE-REQ pdu and respond with a valid VT-RELEASE-RESP pdu rejecting the release;

check that the IUT remains in the Data Handling phase;

check that the IUT can receive a valid VT-RELEASE-REQ pdu and respond with a valid VT-RELEASE-RESP pdu accepting the release;

check that the IUT has entered the idle phase;
2. (S-mode only) a VT-association exists in the Data Handling state with the Negotiated Release functional unit having been selected and with the VT-token held by the IUT;

check that the IUT can send a valid VT-RELEASE-REQ pdu and receive a valid VT-RELEASE-RESP pdu in response rejecting the release;

check that the IUT remains in the Data Handling phase;

check that the IUT can send a valid VT-RELEASE-REQ pdu and receive a valid VT-RELEASE-RESP pdu accepting the release;

check that the IUT has entered the idle phase;
3. (A-mode only) a VT-association exists in the Data Handling state with the Negotiated Release functional unit having been selected;

check that the IUT can receive a valid VT-RELEASE-REQ pdu and respond with a valid VT-RELEASE-RESP pdu rejecting the release;

check that the IUT remains in the Data Handling phase;

check that the IUT can receive a valid VT-RELEASE-REQ pdu and respond with a valid VT-RELEASE-RESP pdu accepting the release;

check that the IUT has entered the idle phase;

4. (A-mode only) a VT-association exists in the Data Handling state with the Negotiated Release functional unit having been selected; check that the IUT can send a valid VT-RELEASE-REQ pdu and receive a valid VT-RELEASE-RESP pdu in response rejecting the release; check that the IUT remains in the Data Handling phase; check that the IUT can send a valid VT-RELEASE-REQ pdu and receive a valid VT-RELEASE-RESP pdu accepting the release; check that the IUT has entered the idle phase.

11.5 CA/urgent data (UD)

Reference: ISO 9041-1 Table 12

Test group objective: To check the capability to support the Urgent Data functional unit.

Test purposes:

1. (S-mode only) a VT-association exists in Data Handling phase with a VTE containing an urgent priority CO which can be accessed by the LT (if necessary the VT-token must be held); check that the IUT can receive a VT-URGENT-DATA pdu to update the CO and that this pdu was sent on the expedited flow;
2. (S-mode only) a VT-association exists in Data Handling phase with a VTE containing an urgent priority CO which can be accessed by the IUT (if necessary the VT-token must be held); check that the IUT can send a VT-URGENT-DATA pdu to update the CO and that this pdu was sent on the expedited flow;
3. (A-mode only) a VT-association exists in Data Handling phase with a VTE containing an urgent priority CO which can be accessed by the LT; check that the IUT can receive a VT-URGENT-DATA pdu to update the CO and that this pdu was sent on the expedited flow;

4. (A-mode only) a VT-association exists in Data Handling phase with a VTE containing an urgent priority CO which can be accessed by the IUT;

check that the IUT can send a VT-URGENT-DATA pdu to update the CO and that this pdu was sent on the expedited flow.

11.6 CA/break (BR)

Reference: ISO 9041-1 Table 15

Test group objective: To check the capability to support the Break functional unit.

Test purposes:

1. (S-mode only) a VT-association exists in the Data Handling state and the Break functional unit has been selected; check that the IUT can receive a valid VT-BREAK-REQ pdu and respond by sending a valid VT-BREAK-RESP pdu; check that the IUT remains in the Data Handling phase; check that the IUT can send a valid VT-BREAK-REQ and receive a valid VT-BREAK-RESP pdu in response; check that the IUT remains in the Data Handling phase;
2. (A-mode only) — test purpose identical to purpose 1 above.

11.7 CA/enhanced access rules (EAR)

Reference: ISO 9040 10.5

Test group objective: To check the capability to support the Enhanced Access Rules functional unit.

Test purposes:

1. a VT-association exists in the Data Handling state in S-mode with the Enhanced Access Rules functional unit selected; a CO exists in the VTE with CO-access set to either WAVAR + WACA or to WAVAR + WACI; the IUT holds the access-right which allows it to update the CO; check that the IUT can send a valid VT-DATA pdu which updates the CO;
2. a VT-association exists in the Data Handling state in S-mode with the Enhanced Access Rules functional unit selected; a CO exists in the VTE with CO-access set to either WAVAR + WACA or to WAVAR + WACI; the LT holds the access-right which allows it to update the CO; check that the IUT can receive a valid VT-DATA pdu which updates the CO followed by a valid VT-GIVE-TOKEN pdu; check that an attempt made to cause the IUT to update the CO is rejected by the IUT.

NOTE There are no tests for A-mode since the enhanced access rules functional unit does not add functionality to A-mode.

11.8 CA/structured control objects (SCO)

Reference: ISO 9040 10.6

Test group objective: To check the capability to support the Structured Control Objects functional unit.

Test purposes:

1. (S-mode only) a VT-association exists in the Data Handling state with the Structured Control Objects functional unit selected; a multi-element CO exists in the VTE and the LT holds the access-right to update the CO; check that the IUT can receive a valid VT-DATA pdu to update 2 elements of the CO;
2. (S-mode only) a VT-association exists in the Data Handling state with the Structured Control Objects functional unit selected; a multi-element CO exists in the VTE and the IUT holds the access-right to update the CO; check that the IUT can send a valid VT-DATA pdu to update 2 elements of the CO;
3. (A-mode only) this test purpose is identical to purpose 1 above;
4. (A-mode only) this test purpose is identical to purpose 2 above.

11.9 CA/blocks (BK)

Reference: ISO 9040 10.7

Test group objective: To check the capability to support the Blocks functional unit.

Test purposes:

1. (S-mode only) a VT-association exists in the Data Handling state with the Blocks functional unit selected; the VT-token is held by the LT; no blocks have been defined; check that the IUT can receive a valid VT-DATA pdu to create a block; check that the IUT can receive a valid VT-DATA pdu with a Text operation to write characters into the block followed by a valid VT-GIVE-TOKEN pdu; check that the IUT can send a valid VT-DATA pdu with a TEXT operation to write characters into the block; check that the IUT can send a valid VT-DATA pdu to delete the block; check that the updates remain in the Display Object;
2. (S-mode only) a VT-association exists in the Data Handling state with the Blocks functional unit selected; the VT-token is held by the IUT; no blocks have been defined; check that the IUT can send a valid VT-DATA pdu to create a block; check that the IUT can send a valid VT-DATA pdu with a Text operation to write characters into the block followed by a valid VT-GIVE-TOKEN pdu; check that the IUT can receive a valid VT-DATA pdu with a TEXT operation to write characters into the block; check that the IUT can receive a valid VT-DATA pdu to delete the block; check that the updates remain in the Display Object;
3. (A-mode only) a VT-association exists in the Data Handling state with the Blocks functional unit selected; no blocks have been defined. check that the IUT can receive a valid VT-DATA pdu to create a block; check that the IUT can receive a valid VT-DATA pdu with a Text operation to write characters into the block; check that the IUT can send a valid VT-DATA pdu with a TEXT operation to write characters into the block; check that the IUT can send a valid VT-DATA pdu to delete the block; check that the updates remain in the Display Object;
4. (A-mode only) a VT-association exists in the Data Handling state with the Blocks functional unit selected; no blocks have been defined. check that the IUT can send a valid VT-DATA pdu to create a block; check that the IUT can send a valid VT-DATA pdu with a Text operation to write characters into the block; check that the IUT can receive a valid VT-DATA pdu with a TEXT operation to write characters into the block; check that the IUT can receive a valid VT-DATA pdu to delete the block; check that the updates remain in the Display Object.

11.10 CA/fields (FD)

Reference: ISO 9040 10.8

Test group objective: To check the capability to support the Fields functional unit.

Test purposes:

1. (the IUT is an S-mode Application VT-user) a VT-association exists in the Data Handling phase with the Fields functional unit selected; the VTE contains an FDCO with no fields defined; the IUT holds the VT-token; check that the IUT can send a valid VT-DATA pdu to update the FDCO in order to create 2 fields (no linked FEICOs or FEPCOs);
check that the IUT can send a valid VT-DATA pdu containing a Logical Absolute and a Logical Text operation to write characters to the first field followed by a valid VT-GIVE-TOKEN pdu;
check that the IUT can receive a valid VT-DATA pdu containing a Logical Absolute and a Logical Text operation to write characters to the second field.
2. (the IUT is an S-mode Terminal VT-user) a VT-association exists in the Data Handling phase with the Fields functional unit selected; the VTE contains an FDCO with no fields defined; the LT holds the VT-token; check that the IUT can receive a valid VT-DATA pdu to update the FDCO in order to create 2 fields (no linked FEICOs or FEPCOs);
check that the IUT can receive a valid VT-DATA containing a Logical Absolute and a Logical Text operation to write characters to the first field followed by a valid VT-GIVE-TOKEN pdu;
check that the IUT can send a valid VT-DATA pdu containing a Logical Absolute and a Logical Text operation to write characters to the second field.
3. (the IUT is an A-mode Application VT-user) a VT-association exists in the Data Handling phase with the Fields functional unit selected; the VTE contains an FDCO with no fields defined; check that the IUT can send a valid VT-DATA pdu to update the FDCO in order to create 2 fields (no linked FEICOs or FEPCOs);
check that the IUT can send a valid VT-DATA pdu containing a Logical Absolute and a Logical Text operation to write characters to the first field and with the "start data entry" parameter set;

check that the IUT can receive a valid VT-DATA pdu containing a Logical Absolute and a Logical Text operation to write characters to the second field.

4. (the IUT is an A-mode Terminal VT-user) a VT-association exists in the Data Handling phase with the Fields functional unit selected; the VTE contains an FDCO with no fields defined;
check that the IUT can receive a valid VT-DATA pdu to update the FDCO in order to create 2 fields (no linked FEICOs or FEPCOs);
check that the IUT can receive a valid VT-DATA containing a Logical Absolute and a Logical Text operation to write characters to the first field followed and with the "start data entry" parameter set;
check that the IUT can send a valid VT-DATA pdu containing a Logical Absolute and a Logical Text operation to write characters to the second field.

11.11 CA/reference information objects (RIO)

Reference: ISO 9040 10.9

Test group objective: To check the capability to support the Reference Information Objects functional unit.

Test purposes:

1. a VT-association exists in the Data Handling state with the RIOs functional unit selected; the VTE contains a null RIO; the LT holds the access-right to the RIO; check that the IUT can receive a valid VT-DATA pdu to create a RIO record containing a Text operation;
check that the IUT can receive a valid VT-DATA pdu to execute the RIO record just written;
check that the IUT can receive a valid VT-DATA pdu to delete the RIO record.
2. a VT-association exists in the Data Handling state with the RIOs functional unit selected; the VTE contains a null RIO; the IUT holds the access-right to the RIO.
check that the IUT can send a valid VT-DATA pdu to create a RIO record containing a Text operation;
check that the IUT can send a valid VT-DATA pdu to execute the RIO record just written;
check that the IUT can send a valid VT-DATA pdu to delete the RIO record.

11.12 CA/Ripple (RIP)

Reference: ISO 9041-1 Table 3

Test group objective: To check the capability to support the Ripple functional unit.

Test purposes:

1. a VT-association exists in the data handling state with the Ripple functional unit selected, the RMCO set with ripple-mode = "true", the display object initialised with a region with primary attributes set and the POINTER placed within this region;
- check that when a VT-DATA-req pdu is received containing a TEXT operation, ripple occurs in the display object.

11.13 CA/exceptions (EX)

Reference: ISO 9041-1 Table 3

Test group objective: To check the capability to support the Exceptions functional unit.

Test purposes:

1. a VT-association exists in the data handling state with the Exceptions and the Break functional units selected;
check that the IUT can receive a valid VT-P-EXCEPTION-REQ pdu and respond by sending a valid VT-P-EXCEPTION-RESP;
check that the IUT can send a valid VT-BREAK-REQ pdu and receive a valid VT-BREAK-RESP pdu in response;
check that the IUT remains in the data handling phase;

check that the IUT can receive a valid VT-P-EXCEPTION-REQ pdu and respond by sending a valid VT-P-EXCEPTION-RESP;
check that the IUT can receive a valid VT-BREAK-REQ pdu and respond by sending a valid VT-BREAK-RESP pdu;
check that the IUT remains in the data handling phase.

11.14 CA/context retention (CRET)

Reference: ISO 9041-1 Table 3

Test group objective: To check the capability to support the Context Retention functional unit.

Test purposes:

1. a VT-association exists in the data handling state with the Context Retention functional unit selected and the display object initialised with a region with primary attributes set;
check that when a VT-P-SWITCH-PROFILE-REQ and VT-P-SWITCH-PROFILE-RESP exchange occurs with the VT-object-retention parameter set, the contents of the display object are retained.

12 Valid behaviour tests (BV)**12.1 BV/state event transitions (SE)**

References: ISO 9041-1 Annex A State Tables.
Incoming events, states, outgoing events, specific actions, predicates, common events and common actions are described in Tables A.1 to A.7.

Test group objective: Test valid protocol behaviour in each valid state/event intersection.

Test groups:

1. Sector 1 states — association control and quiescent (ACQ)
2. Sector 2 states — negotiation initiation (NI)
3. Sector 3 states — negotiation (MIN)
4. Sector 4 states — data transfer (DAT)

12.1.1 BV/SE/sector 1 states — association control and quiescent (ACQ)

References: Sector 1 states and actions are described in Tables A.8 and A.9 of ISO 9041-1.

Test group objective: Test valid protocol behaviour in each valid state/event intersection for Sector 1 States.

Test groups:

A-mode

1. A-mode kernel association setup and release (AKAR)
2. State 50B intersections — releasing (S50B)
3. State 51Q intersections — releasing (S51Q)
4. State 10B intersections — quiescent (S10B)

S-mode

5. S-mode association setup and release (SAR)
6. State 10N intersections — quiescent (S10N)
7. State 10T intersections — quiescent (S10T)

12.1.1.1.1 *BV/SE/ACQ/A-mode kernel association setup and release (AKAR)*

Test group objective: (This test group may only be executed if the IUT supports A-mode.) Test valid behaviour of association setup and release procedures in A-mode when no functional units are in use.

Test groups:

1. Successful association setup by LT (ASLT)
2. Successful association setup by IUT (ASIUT)
3. Unsuccessful association setup (UNAS)

12.1.1.1.1.1 *BV/SE/ACQ/AKAR/successful association setup by LT (ASLT)*

Test group objective: Test valid behaviour during successful association setup initiated by the LT.

Test purposes:

1. check that on receipt of a valid ASQ pdu specifying A-mode, the IUT issues a VASSind to the V-F-user;
NOTE the IUT should exit to state 03B.
2. check that on receipt of a VASSrsp, the IUT sends a valid ASR pdu;
NOTE the IUT should exit to state 400B.
3. check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 400B.
4. check that on receipt of a VDATreq-n from the VT-user, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 400B.
5. check that on receipt of a VRELreq from the VT-user, if an NDQ is stored, the IUT sends a valid NDQ-ntr;
check that the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.
6. check that on receipt of a valid RLR pdu, if an NDQ is stored, the IUT issues a VDATind-n to the VT-user;
check that the IUT issues a VRELcnf to the VT-user;

NOTE the IUT should exit to state 01.

12.1.1.1.1.2 *BV/SE/ACQ/AKAR/successful association setup by IUT (ASIUT)*

Test group objective: Test valid behaviour during successful association setup initiated by the IUT.

Test purposes:

1. check that on receipt of a valid VASSreq specifying A-mode, the IUT sends a valid ASQ pdu;
NOTE the IUT should exit to state 02B.

2. check that on receipt of a valid ASR pdu, the IUT issues a VASScnf to the VT-user;
NOTE the IUT should exit to state 400B.
3. check that on receipt of a VDATreq-n from the VT-user, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 400B.
4. check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 400B.
5. check that on receipt of a valid RLQ pdu, if an NDQ is stored, the IUT issues a VDATind-n to the VT-user;
check that the IUT issues a VRELind to the VT-user;
NOTE the IUT should exit to state 51R.
6. check that on receipt of VRELrsp, if an NDQ is stored, the IUT sends a valid NDQ-ntr pdu;
check that the IUT sends a valid RLR pdu;
NOTE the IUT should exit to state 01.

NOTE When an implementation receives either an NDQ-ntr or a VDATreq-n, for no delivery control or simple delivery control, the implementation may deliver at its discretion.

12.1.1.1.3 *BV/SE/ACQ/AKAR/unsuccessful Association Setup (UNAS)*

Test group objective: Test valid behaviour during an unsuccessful attempt to setup an association.

Test purposes:

1. check that on receipt of a valid ASQ pdu specifying A-mode, with an unacceptable profile, the IUT sends a valid but failing ASR pdu;
NOTE the IUT should remain in state 01.
2. check that on receipt of a valid ASQ pdu with an acceptable profile, the IUT issues a VASSind to the VT-user;
NOTE the IUT should exit to state 03B.
3. check that on receipt of a failing VASSrsp, the IUT sends a valid but failing ASR pdu;
NOTE the IUT should exit to state 01.
4. check that on receipt of a VASSreq, the IUT sends a valid ASQ pdu;
NOTE the IUT should exit to state 02B.
5. check that on receipt of a valid but failing ASR, the IUT issues a VASScnf to the VT-user;

NOTE the IUT should exit to state 01.

12.1.1.2 BV/SE/ACQ/state 50B intersections — releasing (S50B)

Test group objective: This test group may only be executed when A-mode is available and when session tokens are available — ie when any one of Negotiated Release, Switch Profile or MIN functional units is selected. The objective is to test valid behaviour during release whilst the VTPM is awaiting receipt of tokens from the LT. Important collision cases are tested. In order to reach state 50B, the preamble defined below is used. For those test purposes that end in state 400B, the postamble defined below is used.

Test groups:

1. Release without Negotiated Release (RNNR)
2. Release with Negotiated Release (RNR)
3. Remaining intersections (REM)

12.1.1.2.1 Preamble for BV/SE/ACQ/S50B

This preamble is be used for all test groups in state 50B intersections. It is assumed that the starting state is 01 — no association. The conditions for the start of these test groups are that an A-mode association is required, internal data queues within the IUT are primed and a release has been initiated to leave the IUT in state 50B. The preamble defined in clause C.1.1 may be used.

12.1.1.2.2 Postamble for BV/SE/ACQ/S50B

This postamble is used for some test groups in state 50B intersections. It is assumed that the starting state is 400B — data transfer. The object of the postamble is cause the IUT to exit to state 01 (no association). The postamble defined in clause C.1.2 may be used.

12.1.1.2.3 BV/SE/ACQ/S50B/release without negotiated release (RNNR)

Test group objective: To test valid behaviour of release and release collisions when the Negotiated Release functional unit is not selected (the S50B preamble must not select this functional unit within this test group).

Test groups:

1. Normal release (REL)
2. Collision with release (CREL)
3. Collision with deliver with ack (CDAK)
4. Collision with switch profile (CSWP)
5. Collision with start negotiation (CSNEG)

12.1.1.2.3.1 BV/SE/ACQ/S50B/RNNR/normal release (REL)

Test group objective: To test valid behaviour for normal release.

Test purposes:

1. the S50B preamble is used;
2. check that on receipt of a valid GTQ pdu, the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.
3. check that on receipt of a valid RLR pdu, if there is a stored NDQ, the IUT issues a VDATind-n to the VT-user;
check that the IUT issues a VRELcnf to the VT-user;

NOTE the IUT should exit to state 01.

12.1.1.2.3.2 BV/SE/ACQ/S50B/RNNR/collision with release (CREL)

Test group objective: To test valid behaviour when two releases collide.

Test purposes:

1. the S50B preamble is used;
2. check that on receipt of a valid RLQ pdu, the IUT issues a failing VRELcnf to the VT-user;
check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VRELind to the VT-user;
NOTE the IUT should exit to state 51R.
3. check that on receipt of a VRELrsp, the IUT sends a valid RLR pdu;

NOTE the IUT should exit to state 01.

12.1.1.2.3.3 BV/SE/ACQ/S50B/RNNR/collision with deliver with ack (CDAK)

Test group objective: (only available if simple or quarantined delivery control is supported and selected) To test valid behaviour when a release collides with a deliver with ack (the delivery ack is not sent by the IUT in this case).

Test purposes:

1. the S50B preamble is used;
2. check that on receipt of a valid DLQ with Ack pdu, if there is a stored NDQ, the IUT issues VDATind-n to the VT-user;
check that the IUT issues a VDELind with ack to the VT-user;
NOTE the IUT should remain in state 50B;
3. check that on receipt of a valid GTQ pdu, the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.
4. check that on receipt of a valid RLR pdu, the IUT issues a VRELcnf to the VT-user;

NOTE the IUT should exit to state 01.

12.1.1.2.3.4 BV/SE/ACQ/S50B/RNNR/collision with switch profile (CSWP)

Test group objective: This test group is only available when the switch profile functional unit is available. To test valid behaviour when a release collides with a switch profile.

Test purposes:

1. the S50B preamble is used;
2. check that on receipt of a valid SPQ pdu with an unacceptable profile, the IUT sends a valid but failing SPR pdu;
check that the IUT sends a valid RTQ pdu
NOTE the IUT should remain in state 50B.

3. check that on receipt of a valid SPQ pdu with an acceptable profile, the IUT issues a failing VRELcnf to the VT-user;
check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.
check that on receipt of a failing VSWPrsp, the IUT sends a valid but failing SPR pdu;
NOTE the IUT should exit to state 400B.
5. check that on receipt of a VRELreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 50B.
6. check that on receipt of a valid SPQ pdu with an acceptable profile, the IUT issues a failing VRELcnf to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.
7. check that on receipt of a VSWPrsp, the IUT sends a valid SPR pdu;
NOTE the IUT should exit to state 400B.
8. use the S50B postamble to return to state 01.

12.1.1.2.3.5 BV/SE/ACQ/S50B/RNNR/Collision with start negotiation (CSNEG)

Test group objective: This test group is only available when the MIN functional unit is available. To test valid behaviour when a release collides with a start negotiation.

Test purposes:

1. the S50B preamble is used;
2. check that on receipt of a valid SNQ pdu with an unacceptable profile, the IUT sends a valid but failing SNR pdu;
check that the IUT sends a valid RTQ pdu;
NOTE the IUT should remain in state 50B.

3. check that on receipt of a valid SNQ pdu with an acceptable profile, the IUT issues a failing VRELcnf to the VT-user;
check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VSNEGind to the VT-user;

NOTE the IUT should exit to state 31R.

4. check that on receipt of a failing VSNEGrsp, the IUT sends a valid but failing SNR pdu;
NOTE the IUT should exit to state 400B.

5. check that on receipt of a VRELreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 50B.

6. check that on receipt of a valid SNQ pdu with an acceptable profile, the IUT issues a failing VRELcnf to the VT-user;
check that the IUT issues a VSNEGind to the VT-user;
NOTE the IUT should exit to state 31R.

7. check that on receipt of a VSNEGrsp, the IUT sends a valid SNR pdu;
NOTE the IUT should exit to state 36R.

8. check that on receipt of a valid ENQ pdu with acceptable parameters, the IUT issues a VENEGind to the VT-user;
NOTE the IUT should exit to state 37R.

9. check that on receipt of a VENEGrsp, the IUT sends a valid ENR pdu;
NOTE the IUT should exit to state 400B.

10. use the S50B postamble to return to state 01.

12.1.1.2.4 BV/SE/ACQ/S50B release with negotiated release (RNR)

Test group objective: (only available if the negotiated release functional unit is available — the S50B preamble must select this functional unit within this test group) To test valid behaviour of release and release collisions when the Negotiated Release functional unit is selected.

Test groups:

1. Normal release (REL)
2. Release refusal (NREL)
3. Collision with release (CREL)
4. Collision with deliver with ack (CDAK)
5. Collision with switch profile (CSWP)
6. Collision with start negotiation (CSNEG)

12.1.1.2.4.1 BV/SE/ACQ/S50B/RNR/normal release (REL)

Test group objective: To test valid behaviour for normal release.

This test group is identical to S50B/RNNR/REL so does not have to be separately specified.

12.1.1.2.4.2 BV/SE/ACQ/S50B/RNR/release refusal (NREL)

Test group objective: To test valid behaviour for release refusal.

Test purposes:

1. the S50B preamble is used;
2. check that on receipt of a valid GTQ pdu, the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.
3. check that on receipt of a valid but failing RLR pdu, the IUT issues a failing VRELCnf to the VT-user;
NOTE the IUT should exit to state 400B.
4. use the S50B postamble to return to state 01.

12.1.1.2.4.3 BV/SE/ACQ/S50B/RNR/collision with release (CREL)

Test group objective: To test valid behaviour when two releases collide.

Test purposes:

1. the S50B preamble is used;
2. check that on receipt of a valid RLQ pdu, the IUT issues a failing VRELCnf to the VT-user; check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user; check that the IUT issues a VRELind to the VT-user;
NOTE the IUT should exit to state 51R.
3. check that on receipt of a VRELrsp, the IUT sends a valid RLR pdu;
NOTE the IUT should exit to state 01.

12.1.1.2.4.4 BV/SE/ACQ/S50B/RNR/collision with deliver with ack (CDAK)

Test group objective: (only available if simple or quarantined delivery control is supported and selected) To test valid behaviour when a release collides with a deliver with ack.

Test purposes:

1. the S50B preamble is used;
2. check that on receipt of a valid DLQ with Ack pdu, that the IUT does nothing;
NOTE the IUT should remain in state 50B;
3. check that on receipt of a valid GTQ pdu, the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.
4. check that on receipt of a valid but failing with collision detected RLR pdu, the IUT issues a failing VRELCnf to the VT-user; check that if there is a stored NDQ, the IUT issues VDATind-n to the VT-user; check that the IUT issues a VDELind with ack to the VT-user;
NOTE the IUT should exit to state 402B;

5. check that on receipt of a VDACKreq, the IUT sends a valid DAQ pdu;

NOTE the IUT should exit to state 400B.

6. use the S50B postamble but without the token exchange to return to state 01.

12.1.1.2.4.5 BV/SE/ACQ/S50B/RNR/collision with switch profile (CSWP)

Test group objective: This test group is only available when the switch profile functional unit is available. To test valid behaviour when a release collides with a switch profile.

This test group is identical to S50B/RNNR/SWP so does not have to be separately specified.

12.1.1.2.4.6 BV/SE/ACQ/S50B/RNR/collision with start negotiation (CSNEG)

Test group objective: This test group is only available when the MIN functional unit is available. To test valid behaviour when a release collides with a start negotiation.

This test group is identical to S50B/RNNR/SSNEG so does not have to be separately specified.

12.1.1.2.5 BV/SE/ACQ/S50B/remaining intersections (REM)

Test group objective: To check the valid operation of the remaining intersections of state 50B.

Test purposes:

1. the S50B preamble is used;

2. (only if the exceptions and the break functional units are selected) check that on receipt of a valid EXQ pdu, the IUT issues a VPExind to the VT-user;
NOTE the IUT should exit to state 71.
3. (only if the exceptions and the break functional units are selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62;
4. (only if the exceptions and the break functional units are selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 400B.
5. (only if the exceptions and the break functional units are selected) check that on receipt of a VRELreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 50B.

6. (only if Break functional unit available and selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62.

7. (only if Break functional unit available and selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 400B.

8. (only if Break functional unit available and selected)
check that on receipt of a VRELreq from the VT-user, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 50B.

9. (only if a high priority CO is defined in the VTE) check that on receipt of a valid HDQ pdu, the IUT issues a VDATind-h to the VT-user;
NOTE the IUT should remain in state 50B.

10. (only if an urgent priority CO is defined in the VTE) check that on receipt of a valid UDQ pdu, the IUT issues a VDATind-u to the VT-user;
NOTE the IUT should remain in state 50B.

11. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);
NOTE the IUT should remain in state 50B.

12. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-tr pdu, the IUT issues one or two VDATind-n to the VT-user;
check that the IUT issues a VDATind-n (for trigger CO) to the VT-user;
NOTE the IUT should remain in state 50B.

13. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);
NOTE the IUT should remain in state 50B.

14. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid DLQ pdu, the IUT issues one or two VDATind-n to the VT-user;
check that the IUT issues a VDELind to the VT-user;
NOTE the IUT should remain in state 50B;

15. check that on receipt of a valid GTQ pdu, the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.

16. check that on receipt of a valid RLR pdu, if there is a stored NDQ, the IUT issues a VDATind-n to the VT-user;
check that the IUT issues a VRELcnf to the VT-user;
NOTE the IUT should exit to state 01.

12.1.1.3 BV/SE/ACQ/state 51Q intersections — releasing (S51Q)

Test group objective: This test group may only be executed when A-mode is available. The objective is to test valid behaviour during release. Important collision cases are tested. In order to reach state 50Q, the preamble defined below is used apart from one instance. For those test purposes that end in state 50B, the postamble defined below is used. Many of the protocol sequences that pass through this state have already been specified in state 50B intersections. Only those which do not also pass through state 50B are defined in this test group.

Test groups:

1. Release without Negotiated Release (RNNR)
2. Release with Negotiated Release (RNR)
3. Remaining intersections (REM)

12.1.1.3.1 Preamble for BV/SE/ACQ/S51Q

This preamble is used for most test groups in state 51Q intersections. It is assumed that the starting state is 01 — no association. The conditions for the start of these test groups are that an A-mode association is required, internal data queues within the IUT are primed and a release has been initiated to leave the IUT in state 51Q. The preamble defined in clause C.1.3 may be used.

12.1.1.3.2 Postamble for BV/SE/ACQ/S51Q

This postamble is used for some test groups in state 51Q intersections. It is assumed that the starting state is 400B — data transfer. The object of this postamble is to cause the IUT to exit to state 01 (no association). The postamble defined in clause C.1.4 may be used.

12.1.1.3.3 BV/SE/ACQ/S51Q/release without negotiated release (RNNR)

Test group objective: To test valid behaviour of release and release collisions when the Negotiated Release functional unit is not selected (the S51Q preamble must not select this functional unit within this test group).

Test groups:

1. Normal release (REL)
2. Collision with release (CREL)
3. Collision with deliver with ack (CDAK)

12.1.1.3.3.1 BV/SE/ACQ/S51Q/RNNR/normal release (REL)

Test group objective: To test valid behaviour for normal release.

Test purposes:

1. the S51Q preamble is used without selection of the Negotiated Release functional unit;
2. check that on receipt of a valid RLR pdu, if there is a stored NDQ, the IUT issues a VDATind-n to the VT-user;
check that the IUT issues a VRELcnf to the VT-user;

NOTE the IUT should exit to state 01.

12.1.1.3.3.2 BV/SE/ACQ/S51Q/RNNR/collision with release (CREL)

Test group objective: To test valid behaviour when two releases collide.

Test purposes:

1. the S51Q preamble is used — no functional units are selected;
2. check that on receipt of a valid RLQ pdu, the IUT sends a valid RLR pdu;
NOTE the IUT should remain in state 51Q.
3. check that on receipt of a valid RLR pdu, if there is a stored NDQ, the IUT issues a VDATind-n to the VT-user;
check that the IUT issues a VRELcnf to the VT-user;
NOTE the IUT should exit to state 01.

4. check that on receipt of a valid ASQ pdu specifying A-mode, that the IUT issues a VASSind to the VT-user;
NOTE the IUT should exit to state 03B.
5. check that on receipt of a succeeding VASSrsp from the VT-user, the IUT sends a valid succeeding ASR pdu;
NOTE the IUT should exit to state 400B.
6. check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 400B.
7. check that on receipt of a VDATreq-n from the VT-user, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 400B.
8. check that on receipt of a VRELreq from the VT-user, if an NDQ is stored, the IUT sends a valid NDQ-ntr;
check that the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.

9. check that on receipt of a valid RLQ pdu the IUT does nothing;

NOTE the IUT should remain in state 51Q.

10. check that on receipt of a valid RLR pdu, if there is a stored NDQ, the IUT issues a VDATind-n to the VT-user;
check that the IUT issues a VRELcnf to the VT-user;
check that the IUT sends a valid RLR pdu;

NOTE the IUT should exit to state 01.

12.1.1.3.3.3 BV/SE/ACQ/S51Q/RNNR/collision with deliver with ack (CDAK)

Test group objective: (only available if simple or quarantined delivery control is supported and selected) To test valid behaviour when a release collides with a deliver with ack (the delivery ack is not sent by the IUT in this case).

Test purposes:

1. the S51Q preamble is used without selection of the Negotiated Release functional unit;
2. check that on receipt of a valid DLQ with Ack pdu, if there is a stored NDQ, the IUT issues VDATind-n to the VT-user;
check that the IUT issues a VDELind with ack to the VT-user;
NOTE the IUT should remain in state 51Q;
3. check that on receipt of a valid RLR pdu, the IUT issues a VRELcnf to the VT-user;
NOTE the IUT should exit to state 01.

12.1.1.3.4 BV/SE/ACQ/S51Q/release with negotiated release (RNR)

Test group objective: (only available if the Negotiated Release functional unit is available — the preamble must select this functional unit within this test group) To test valid behaviour of release and release collisions when the Negotiated Release functional unit is selected.

Test groups:

1. Normal release (REL)
2. Release refusal (NREL)
3. Collision with release (CREL)
4. Collision with deliver with ack (CDAK)

12.1.1.3.4.1 BV/SE/ACQ/S51Q/RNR/normal release (REL)

Test group objective: To test valid behaviour for normal release.

This test group is identical to S51Q/RNNR/REL so does not have to be separately specified.

12.1.1.3.4.2 BV/SE/ACQ/S51Q/RNR/release refusal (NREL)

Test group objective: To test valid behaviour for release refusal.

Test purposes:

1. the S51Q preamble is used.
2. check that on receipt of a valid but failing RLR pdu, the IUT issues a failing VRELcnf to the VT-user;
NOTE the IUT should exit to state 400B.
3. use the S51Q postamble to return to state 01.

12.1.1.3.4.3 BV/SE/ACQ/S51Q/RNR/collision with release (CREL)

Test group objective: To test valid behaviour when two releases collide.

Test purposes:

1. the S51Q preamble is used;
2. check that on receipt of a valid RLQ pdu, the IUT issues a failing VRELcnf to the VT-user; check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user; check that the IUT issues a VRELind to the VT-user;
NOTE the IUT should exit to state 51R.
3. check that on receipt of a VRELrsp, the IUT sends a valid RLR pdu;
NOTE the IUT should exit to state 01.

12.1.1.3.4.4 BV/SE/ACQ/S51Q/RNR/collision with deliver with ack (CDAK)

Test group objective: (only available if simple or quarantined delivery control is supported and selected) To test valid behaviour when a release collides with a deliver with ack.

Test purposes:

1. the S51Q preamble is used;
2. check that on receipt of a valid DLQ with Ack pdu the IUT does nothing;
NOTE the IUT should remain in state 51Q;
3. check that on receipt of a valid but failing with collision detected RLR pdu, the IUT issues a failing VRELcnf to the VT-user; check that if there is a stored NDQ, the IUT issues VDATind-n to the VT-user; check that the IUT issues a VDELind with ack to the VT-user;
NOTE the IUT should exit to state 402B;
4. check that on receipt of a VDAKreq, the IUT sends a valid DAQ pdu;
NOTE the IUT should exit to state 400B.
5. use the S51Q postamble to return to state 01.

12.1.1.3.5 BV/SE/ACQ/S51Q/remaining intersections (REM)

Test group objective: To check the valid operation of the remaining intersections of state 51Q.

Test purposes:

1. the S51Q preamble is used;

2. (only if the exceptions and the break functional units are selected) check that on receipt of a valid EXQ pdu, the IUT issues a VPExind to the VT-user;
NOTE the IUT should exit to state 71.
3. (only if the exceptions and the break functional units are selected) check that on receipt of a VBRKreq, the IUT sends a valid BKQ pdu;
NOTE the IUT should exit to state 61;
4. (only if the exceptions and the break functional units are selected) check that on receipt of a valid BKR pdu, the IUT issues a VBRKcnf to the VT-user;
NOTE the IUT should exit to state 400B.
5. (only if the exceptions and the break functional units are selected) check that on receipt of a VRELreq, the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.

6. (only if Break functional unit available and selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62.
7. (only if Break functional unit available and selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 400B.
8. (only if Break functional unit available and selected) check that on receipt of a VRELreq from the VT-user, the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.

9. (only if a high priority CO is defined in the VTE) check that on receipt of a valid HDQ pdu, the IUT issues a VDATind-h to the VT-user;
NOTE the IUT should remain in state 51Q.

10. (only if an urgent priority CO is defined in the VTE) check that on receipt of a valid UDQ pdu, the IUT issues a VDATind-u to the VT-user;
NOTE the IUT should remain in state 51Q.

11. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);

NOTE the IUT should remain in state 51Q.

12. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-tr pdu, the IUT issues one or two VDATind-n to the VT-user;

check that the IUT issues a VDATind-n (for trigger CO) to the VT-user;

NOTE the IUT should remain in state 51Q.

13. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);

NOTE the IUT should remain in state 51Q.

14. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid DLQ pdu, the IUT issues one or two VDATind-n to the VT-user;

check that the IUT issues a VDELind to the VT-user;

NOTE the IUT should remain in state 51Q;

15. check that on receipt of a valid RTQ pdu the IUT does nothing

NOTE The IUT should remain in state 51Q.

16. check that on receipt of a valid RLR pdu, if there is a stored NDQ, the IUT issues a VDATind-n to the VT-user;

check that the IUT issues a VRELcnf to the VT-user;

NOTE the IUT should exit to state 01.

12.1.1.4 BV/SE/ACQ/state 10B intersections — quiescent (S10B)

Test group objective: This test group may only be executed when A-mode is available and if one or both of the Switch Profile and Multiple Interaction Negotiation functional units are available and selected. The objective is to test valid behaviour during the quiescent state. In order to reach state 10B, the preamble defined below is used.

Test groups:

1. Switch profile entry and exit by LT (SPQ)
2. MIN entry and exit by LT (SNQ)
3. Release by LT (RLQ)
4. Switch profile entry and exit by IUT (VSPQ)
5. MIN entry and exit by IUT (VSNQ)
6. Release by IUT (VRLQ)

12.1.1.4.1 Preamble for BV/SE/ACQ/S10B

This preamble is used for all test groups in state 10B intersections. It is assumed that the starting state is 01 — no association. The conditions for the start of these test groups are that an A-mode association is required with at least the Switch Profile functional unit selected. In the association exchange, profile argument values are chosen which leaves an incomplete VTE defined and the IUT is left in state 10B. The preamble defined in clause C.1.5 may be used.

12.1.1.4.2 Postamble for 10B when tokens are not held

This postamble is used to exit from state 400B when tokens are not held. The postamble defined in clause C.1.6 may be used.

12.1.1.4.3 Postamble for 10B when tokens are held

This postamble is used to exit from state 400B when tokens are held. The postamble defined in clause C.1.7 may be used.

12.1.1.4.4 BV/SE/ACQ/S10B/switch profile entry and exit by LT (SPQ)

Test group objective: The objective is to test valid behaviour in state 10B when the LT performs a switch profile and to test return to this state when a switch profile does not result in a full-VTE.

Test purposes:

1. the S10B preamble is used;
 2. check that on receipt of a valid RTQ pdu, the IUT sends a valid GTQ pdu;
- NOTE the IUT should remain in state 10B.
3. check that on receipt of a valid SPQ pdu but for a profile not supported by the IUT, the IUT sends a valid but failing SPR pdu;
- NOTE the IUT should remain in state 10B.

4. check that on receipt of a valid SPQ pdu for a profile supported by the IUT, the IUT issues a VSWPind to the VT-user.
- NOTE the IUT should exit to state 21R.
5. check that on receipt of a failing VSWPrsp, the IUT sends a valid but failing SPR pdu;
- NOTE the IUT should exit to state 10B.

6. check that on receipt of a valid SPQ pdu for a profile supported by the IUT, the IUT issues a VSWPind to the VT-user.
- NOTE the IUT should exit to state 21R.
7. check that on receipt of a successful VSWPrsp, the IUT sends a valid and successful SPR pdu;
- NOTE the IUT should exit to state 400B.

8. Use the token not held postamble to exit to state 01.

12.1.1.4.5 BV/SE/ACQ/S10B/MIN entry and exit by LT (SNQ)

Test group objective: This test group may only be executed when the MIN functional unit is available. The objective is to test valid behaviour in state 10B when the LT performs entry into MIN and to test return to this state when MIN does not result in a full-VTE.

Test purposes:

1. the S10B preamble is used — MIN is selected;
2. check that on receipt of a valid RTQ pdu, the IUT sends a valid GTQ pdu;
NOTE the IUT should remain in state 10B.
3. check that on receipt of a valid SNQ pdu but for a profile not supported by the IUT, the IUT sends a valid but failing SNR pdu;
NOTE the IUT should remain in state 10B.

4. check that on receipt of a valid SNQ pdu for a profile supported by the IUT, the IUT issues a VSNEGind to the VT-user.
NOTE the IUT should exit to state 31R.
5. check that on receipt of a failing VSNEGrsp, the IUT sends a valid but failing SNR pdu;
NOTE the IUT should exit to state 10B.

6. check that on receipt of a valid SNQ pdu for a profile supported by the IUT but not specifying a full-VTE, the IUT issues a VSNEGind to the VT-user.
NOTE the IUT should exit to state 31R.
7. check that on receipt of a successful VSNEGrsp, the IUT sends a valid and successful SNR pdu;
NOTE the IUT should exit to state 36R.
8. check that on receipt of a valid ENQ pdu, the IUT issues a VENEGind to the VT-user.
NOTE the IUT should exit to state 37R.
9. check that on receipt of a VENEGrsp with sww, the IUT sends a valid ENR pdu with sww;
NOTE the IUT should exit to state 10B.

10. use the token not held postamble to exit to state 01.

12.1.1.4.6 BV/SE/ACQ/S10B/release by LT (RLQ)

Test group objective: (This test group is only available if the Negotiated Release functional unit is available and selected). The objective is to test valid behaviour in state 10B When the LT issues a release and to test return to this state when a release is refused.

Test purposes:

1. the S10B preamble is used (the Negotiated Release functional unit is selected);
2. check that on receipt of a valid RTQ pdu, the IUT sends a valid GTQ pdu;
NOTE the IUT should remain in state 10B.

3. check that on receipt of a valid RLQ pdu, the IUT issues a VRELind to the VT-user;
NOTE the IUT should exit to state 51R.
4. check that on receipt of a failing VRELrsp, the IUT sends a valid but failing RLR pdu;
NOTE the IUT should exit to state 10B.

5. use the token not held postamble to exit to state 01.

12.1.1.4.7 BV/SE/ACQ/S10B/switch profile entry and exit by IUT (VSPQ)

Test group objective: The objective is to test valid behaviour in state 10B when the IUT performs a switch profile and to test return to this state when a switch profile does not result in a full-VT.

Test purposes:

1. the S10B preamble is used;
2. check that on receipt of a valid VSWPreq, the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21Q.
3. check that on receipt of a valid but failing SPR pdu, the IUT issues a failing VSWPcnf to the VT-user;
NOTE the IUT should exit to state 10B.

4. check that on receipt of a valid VSWPreq, the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21Q.
5. check that on receipt of a successful SPR pdu, the IUT issues a successful VSWPcnf to the VT-user;
NOTE the IUT should exit to state 400B.

6. use the token held postamble to exit to state 01.

12.1.1.4.8 BV/SE/ACQ/S10B/MIN entry and exit by IUT (VSNQ)

Test group objective: This test group may only be executed when the MIN functional unit is available. The objective is to test valid behaviour in state 10B when the IUT performs entry into MIN and to test return to this state when MIN does not result in a full-VTE.

Test purposes:

1. the S10B preamble is used — MIN is selected;
2. check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31Q.
3. check that on receipt of a failing SNR pdu, the IUT issues a failing VSNEGcnf to the VT-user;
NOTE the IUT should exit to state 10B.
-
4. check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31Q.
5. check that on receipt of a successful SNR pdu, the IUT issues a successful VSNEGcnf to the VT-user;
NOTE the IUT should exit to state 35Q.
6. check that on receipt of a VENEGreq, the IUT sends a valid ENQ pdu;
NOTE the IUT should exit to state 37Q.
7. check that on receipt of a valid ENR pdu with sww, the IUT issues a VENEGcnf with sww to the VT-user;
NOTE the IUT should exit to state 10B.
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8. use the token held postamble to exit to state 01.

12.1.1.4.9 BV/SE/ACQ/S10B/release by IUT (VRLQ)

Test group objective: The objective is to test valid behaviour in state 10B when the IUT issues a release and to test return to this state when a release is refused.

Test purposes:

1. the S10B preamble is used (if available the Negotiated Release functional unit is selected);

2. (only if Negotiated Release functional unit is available) check that on receipt of a VRELreq, the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51Q.
3. (only if Negotiated Release functional unit is available) check that on receipt of a valid but failing RLR pdu, the IUT issues a failing VRELcnf;
NOTE the IUT should exit to state 10B.
-
4. use the token held postamble to exit to state 01.

12.1.1.5 BV/SE/ACQ/S-mode association setup and release (SAR)

Test group objective: (This test group may only be executed if the IUT supports S-mode.) Test valid behaviour of association setup and release procedures in S-mode.

Test groups:

1. Successful association setup and release by LT (ASLT)
2. Successful association setup and release by IUT (ASIUT)
3. Unsuccessful association setup (UNAS)

12.1.1.5.1 BV/SE/ACQ/SAR/successful association setup and release by LT (ASLT)

Test group objective: Test valid behaviour during successful association setup initiated by the LT.

Test purposes:

1. check that on receipt of a valid ASQ pdu specifying S-mode with LT holding the token, the IUT issues a VASSind to the VT-user;
NOTE the IUT should exit to state 03S.
2. check that on receipt of a VASSrsp, the IUT sends a valid ASR pdu;
NOTE the IUT should exit to state 40N.
-
3. check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 40N.
4. check that on receipt of a valid GTQ pdu, if an NDQ is stored, the IUT issues a VDATind-n to the VT-user;
check that the IUT issues a VGVVtind to the VT-user;
NOTE the IUT should exit to state 40T.
-
5. check that on receipt of a VDATreq-n from the VT-user, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 40T.
6. check that on receipt of a VGVVtreq, if an NDQ is stored, the IUT sends a valid NDQ-ntr pdu;
check that the IUT sends a valid GTQ pdu;
NOTE the IUT should exit to state 40N.
-
7. (only if Negotiated Release functional unit is available) check that on receipt of a valid RLQ pdu, the IUT issues a VRELind to the VT-user;
NOTE the IUT should exit to state 51N.

8. (only if Negotiated Release functional unit is available) check that on receipt of a failing VRELrsp, the IUT sends a valid but failing RLR pdu;

NOTE the IUT should exit to state 40N.

9. check that on receipt of a valid RLQ pdu, the IUT issues a VRELind to the VT-user;

NOTE the IUT should exit to state 51N.

10. check that on receipt of VRELrsp, the IUT sends a valid RLR pdu;

NOTE the IUT should exit to state 01.

12.1.1.5.2 BV/SE/ACQ/SAR/successful association setup and release by IUT (ASIUT)

Test group objective: Test valid behaviour during successful association setup initiated by the IUT.

Test purposes:

1. check that on receipt of a VASSreq specifying S-mode with the IUT holding the token, the IUT sends a valid ASQ pdu;

NOTE the IUT should exit to state 02S.

2. check that on receipt of a valid ASR pdu, the IUT issues a VASScnf to the VT-user;

NOTE the IUT should exit to state 40T.

3. check that on receipt of a VDATreq-n from the VT-user, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;

NOTE the IUT should remain in state 40T.

4. check that on receipt of a valid RTQ pdu, the IUT issues a VRQTind to the VT-user;

NOTE the IUT should remain in state 40T.

5. check that on receipt of a VGVTrreq, if an NDQ is stored, the IUT sends a valid NDQ-ntr pdu;

check that the IUT sends a valid GTQ pdu;

NOTE the IUT should exit to state 40N.

6. check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;

NOTE the IUT should remain in state 40N.

7. check that on the receipt of a VRQTreq, the IUT sends a valid RTQ pdu;

NOTE the IUT should remain in state 40N.

8. check that on receipt of a valid GTQ pdu, if an NDQ is stored, the IUT issues a VDATind-n to the VT-user;

check that the IUT issues a VGVTrind to the VT-user;

NOTE the IUT should exit to state 40T.

9. check that on receipt of a VRELreq from the VT-user, the IUT sends a valid RLQ pdu;

NOTE the IUT should exit to state 51T.

10. (only if the exceptions and the break functional units are selected) check that on receipt of a valid EXQ pdu, the IUT issues a VPExind to the VT-user;

NOTE the IUT should exit to state 71.

11. (only if the exceptions and the break functional units are selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;

NOTE the IUT should exit to state 62;

12. (only if the exceptions and the break functional units are selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;

NOTE the IUT should exit to state 40T.

13. (only if the exceptions and the break functional units are selected) check that on receipt of a VRELreq, the IUT sends a valid RLQ pdu;

NOTE the IUT should exit to state 51T.

14. (only if Break functional unit available and selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;

NOTE the IUT should exit to state 62.

15. (only if Break functional unit available and selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;

NOTE the IUT should exit to state 40T.

16. (only if Break functional unit available and selected) check that on receipt of a VRELreq from the VT-user, the IUT sends a valid RLQ pdu;

NOTE the IUT should exit to state 51T.

17. (only if a high priority CO is defined in the VTE) check that on receipt of a valid HDQ pdu, the IUT issues a VDATind-h to the VT-user;

NOTE the IUT should remain in state 51T.

18. (only if an urgent priority CO is defined in the VTE) check that on receipt of a valid UDQ pdu, the IUT issues a VDATind-u to the VT-user;

NOTE the IUT should remain in state 51T.

19. check that on receipt of a valid RTQ pdu the IUT does nothing

NOTE the IUT should remain in state 51T.

20. (only if Negotiated Release functional unit is available) check that on receipt of a valid but failing RLR pdu, the IUT issues a failing VRELcnf;

NOTE the IUT should exit to state 40T.

21. check that on receipt of a VRELreq, the IUT sends a valid RLQ pdu;

NOTE the IUT should exit to state 51T.

22. check that on receipt of a valid RLR pdu, the IUT issues a VRELnfn to the VT-user;

NOTE the IUT should exit to state 01.

12.1.1.5.3 BV/SE/ACQ/SAR/unsuccessful association setup (UNAS)

Test group objective: Test valid behaviour during an unsuccessful attempt to setup an association.

Test purposes:

1. check that on receipt of a valid ASQ pdu specifying S-mode, with an unacceptable profile, the IUT sends a valid but failing ASR pdu;
NOTE the IUT should remain in state 01.
2. check that on receipt of a valid ASQ pdu with an acceptable profile, the IUT issues a VASSind to the VT-user;
NOTE the IUT should exit to state 03S.
3. check that on receipt of a failing VASSrsp, the IUT sends a valid but failing ASR pdu;
NOTE the IUT should exit to state 01.
4. check that on receipt of a VASSreq, the IUT sends a valid ASQ pdu;
NOTE the IUT should exit to state 02S.
5. check that on receipt of a valid but failing ASR, the IUT issues a VASScnf to the VT-user;

NOTE the IUT should exit to state 01.

12.1.1.6 BV/SE/ACQ/state 10N intersections — quiescent (S10N)

Test group objective: This test group may only be executed when S-mode is available and if one or both of the Switch Profile and Multiple Interaction Negotiation functional units are available and selected. The objective is to test valid behaviour during the quiescent state.

Test groups:

1. Switch profile entry and exit by LT (SPQ)
2. MIN entry and exit by LT (SNQ)
3. Release by LT (RLQ)

12.1.1.6.1 Preamble for BV/SE/ACQ/S10N

This preamble is used for all test groups in state 10N intersections. It is assumed that the starting state is 01 — no association. The conditions for the start of these test groups are that an S-mode association is required with at least the Switch Profile functional unit selected and the token held by the LT. In the association exchange, profile argument values are chosen which leaves an incomplete VTE defined and the IUT is left in state 10N. The preamble defined in clause C.1.8 may be used.

12.1.1.6.2 Postamble for BV/SE/ACQ/S10N

This postamble is used for all test groups in state 10N intersections. It is assumed that the starting state is 10N or 40N. The postamble defined in clause C.1.9 may be used.

12.1.1.6.3 BV/SE/ACQ/S10N/switch profile entry and exit by LT (SPQ)

Test group objective: The objective is to test valid behaviour in state 10N when the LT performs a switch profile and to test return to this state when a switch profile does not result in a full-VTE.

Test purposes:

1. preamble 10N is used;

2. check that on receipt of a valid SPQ pdu but for a profile not supported by the IUT, the IUT sends a valid but failing SPR pdu;
NOTE the IUT should remain in state 10N.

3. check that on receipt of a valid SPQ pdu for a profile supported by the IUT, the IUT issues a VSWPind to the VT-user.
NOTE the IUT should exit to state 21N.
4. check that on receipt of a failing VSWPrsp, the IUT sends a valid but failing SPR pdu;
NOTE the IUT should exit to state 10N.

5. check that on receipt of a valid SPQ pdu for a profile supported by the IUT, the IUT issues a VSWPind to the VT-user.
NOTE the IUT should exit to state 21N.
6. check that on receipt of a successful VSWPrsp, the IUT sends a valid and successful SPR pdu;
NOTE the IUT should exit to state 40N.

7. use postamble 10N to exit to state 01.

12.1.1.6.4 BV/SE/ACQ/S10N/MIN entry and exit by LT (SNQ)

Test group objective: This test group may only be executed when the MIN functional unit is available. The objective is to test valid behaviour in state 10N when the LT performs entry into MIN and to test return to this state when MIN does not result in a full-VTE.

Test purposes:

1. preamble 10N is used;

2. check that on receipt of a valid SNQ pdu but for a profile not supported by the IUT, the IUT sends a valid but failing SNR pdu;
NOTE the IUT should remain in state 10N.

3. check that on receipt of a valid SNQ pdu for a profile supported by the IUT, the IUT issues a VSNEGind to the VT-user.

NOTE the IUT should exit to state 31N.

4. check that on receipt of a failing VSNEGrsp, the IUT sends a valid but failing SNR pdu;

NOTE the IUT should exit to state 10N.

5. check that on receipt of a valid SNQ pdu for a profile supported by the IUT but not specifying a full-VTE, the IUT issues a VSNEGind to the VT-user.

NOTE the IUT should exit to state 31N.

6. check that on receipt of a successful VSNEGrsp, the IUT sends a valid and successful SNR pdu;

NOTE the IUT should exit to state 36N.

7. check that on receipt of a valid ENQ pdu, the IUT issues a VENEGind to the VT-user.

NOTE the IUT should exit to state 37N.

8. check that on receipt of a VENEGrsp with sww, the IUT sends a valid ENR pdu with sww;

NOTE the IUT should exit to state 10N.

9. use postamble 10N to exit to state 01.

12.1.1.6.5 BV/SE/ACQ/S10N/release by LT (RLQ)

Test group objective: The objective is to test valid behaviour in state 10N when the LT issues a release and to test return to this state when a release is refused. Token handling is also tested.

Test purposes:

1. preamble 10N is used;

2. (only if Negotiated Release functional unit is available) check that on receipt of a valid RLQ pdu, the IUT issues a VRELind to the VT-user;

NOTE the IUT should exit to state 51N.

3. (only if Negotiated Release functional unit is available) check that on receipt of a failing VRELrsp, the IUT sends a valid but failing RLR pdu;

NOTE the IUT should exit to state 10N.

4. use postamble 10N to exit to state 01.

12.1.1.7 BV/SE/ACQ/state 10T intersections — quiescent (S10T)

Test group objective: This test group may only be executed when S-mode is available and if one or both of the Switch Profile and Multiple Interaction Negotiation functional units are available and selected. The objective is to test valid behaviour during the quiescent state.

Test groups:

1. Switch profile entry and exit by IUT (VSPQ)
2. MIN entry and exit by IUT (VSNQ)
3. Release by IUT (VRLQ)

12.1.1.7.1 Preamble for BV/SE/ACQ/S10T

This preamble is used for all test groups in state 10T intersections. It is assumed that the starting state is 01 — no association. The conditions for the start of these test groups are that an S-mode association is required with at least the Switch Profile functional unit selected and the token held by the IUT. In the association exchange, profile argument values are chosen which leaves an incomplete VTE defined and the IUT is left in state 10T. The preamble defined in clause C.1.10 may be used.

12.1.1.7.2 Postamble for BV/SE/ACQ/S10T

This postamble is used for all test groups in state 10T intersections. It is assumed that the starting state is 10N or 40N. The postamble defined in clause C.1.11 may be used.

12.1.1.7.3 BV/SE/ACQ/S10T/switch profile entry and exit by IUT (VSPQ)

Test group objective: The objective is to test valid behaviour in state 10T when the IUT performs a switch profile and to test return to this state when a switch profile does not result in a full-VTE.

Test purposes:

1. use preamble 10T;

2. check that on receipt of a valid VSWPreq, the IUT sends a valid SPQ pdu;

NOTE the IUT should exit to state 21T.

3. check that on receipt of a valid but failing SPR pdu, the IUT issues a failing VSWPcnf to the VT-user;

NOTE the IUT should exit to state 10T.

4. check that on receipt of a valid VSWPreq, the IUT sends a valid SPQ pdu;

NOTE the IUT should exit to state 21T.

5. check that on receipt of a successful SPR pdu, the IUT issues a successful VSWPcnf to the VT-user;

NOTE the IUT should exit to state 40T.

6. use postamble 10T to exit to state 01.

12.1.1.7.4 BV/SE/ACQ/S10T/MIN entry and exit by IUT (VSNQ)

Test group objective: This test group may only be executed when the MIN functional unit is available. The objective is to test valid behaviour in state 10T when the IUT performs entry into MIN and to test return to this state when MIN does not result in a full-VTE.



Test purposes:

1. use preamble 10T;

2. check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31Q.
3. check that on receipt of a failing SNR pdu, the IUT issues a failing VSNEGcnf to the VT-user;
NOTE the IUT should exit to state 10T.

4. check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31T.
5. check that on receipt of a successful SNR pdu, the IUT issues a successful VSNEGcnf to the VT-user;
NOTE the IUT should exit to state 36T.
6. check that on receipt of a VENEGreq, the IUT sends a valid ENQ pdu;
NOTE the IUT should exit to state 37T.
7. check that on receipt of a valid ENR pdu with sww, the IUT issues a VENEGcnf with sww to the VT-user;
NOTE the IUT should exit to state 10T.

8. use postamble 10T to exit to state 01.

12.1.1.7.5 BV/SE/ACQ/S10T/release by IUT (VRLQ)

Test group objective: The objective is to test valid behaviour in state 10T when the IUT issues a release and to test return to this state when a release is refused. Token handling is also tested.

Test purposes:

1. use preamble 10T;

2. (only if Negotiated Release functional unit is available) check that on receipt of a VRELreq, the IUT sends a valid RLQ pdu;
NOTE the IUT should exit to state 51T.
3. (only if Negotiated Release functional unit is available) check that on receipt of a valid but failing RLR pdu, the IUT issues a failing VRELcnf;
NOTE the IUT should exit to state 10T.

4. use postamble 10T to exit to state 01.

12.1.2 BV/SE/sector 2 states — negotiation initiation (NI)

References: Sector 2 states are described in Table A.10 and Table A.11 of ISO 9041-1.

Test group objective: This test group may only be executed if at least the Switch Profile Negotiation functional unit is supported and selected. The objective is to test valid protocol behaviour in each valid state/event intersection for Sector 2 states.

Test groups:

1. A-mode switch profile (ASP)
2. S-mode switch profile (SSP)
3. A-mode MIN (AMIN)
4. S-mode MIN (SMIN)

12.1.2.1 Postamble for BV/SE/NI for A-mode tests when the session tokens are held

This postamble is used for test groups which terminate in state 400B (data transfer) with the IUT holding the session tokens. The postamble defined in clause C.2.1 may be used.

12.1.2.2 Postamble for BV/SE/NI for A-mode tests when the session tokens are not held

This postamble is used for test groups which terminate in state 400B (data transfer) with the IUT not holding the session tokens. The postamble defined in clause C.2.2 may be used.

12.1.2.3 BV/SE/NI/A-mode switch profile (ASP)

Test group objective: Test valid protocol behaviour during A-mode switch profile negotiation.

Test groups:

1. Normal switch profile negotiation (SP).
2. Normal switch profile negotiation with mode switch (MSP).
3. Collisions with deliver (CDEL).
4. Collisions with switch profile (CSWP).
5. Collisions with MIN (CMIN).
6. Collisions with release (CREL).
7. Remainder of state 20B intersections (S20B).
8. Remainder of state 21Q intersections (S21Q).

12.1.2.3.1 Preamble 20B for BV/SE/NI/ASP

This preamble is used for those test groups that need to start in state 20B. The conditions required for starting these test groups are that there is an A-mode association, internal data queues are primed and that switch profile negotiation has been initiated leaving the IUT in state 20B. The preamble defined in clause C.2.3 may be used.

12.1.2.3.2 Preamble 21Q for BV/SE/NI/ASP

This preamble is used for those test groups that need to start in state 21Q. The conditions required for starting these test groups are that there is an A-mode association, internal data queues are primed and that switch profile negotiation has been initiated leaving the IUT in state 210. The preamble defined in clause C.2.4 may be used.

12.1.2.3.3 BV/SE/NI/ASP/normal switch profile negotiation (SP)

Test group objective: Test valid protocol behaviour during normal A-mode switch profile negotiation.

Test purposes:

1. use preamble 20B;

2. check that on receipt of a valid GTQ pdu, the IUT sends a valid a SPQ pdu;
NOTE the IUT should exit to state 21Q.
3. check that on receipt of a valid but failing SPR pdu, the IUT issues a failing VSWPcnf to the VT-user;
NOTE the IUT should exit to state 400B

4. check that on receipt of a VSWPreq, the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21Q.
5. check that on receipt of a valid SPR pdu (scc), if an NDQ is stored, the IUT issues a VDATind-ntr to the VT-user;
check that the IUT issues a VSWPcnf to the VT-user;
NOTE the IUT should exit to state 400B.

6. (only available if the Context Retention functional unit is selected).
check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 400B.
7. (only available if the Context Retention functional unit is selected).
check that on receipt of a VDATreq-n, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 400B.
8. (only available if the Context Retention functional unit is selected and a CO exists in the VTE with normal priority).
check that on receipt of a valid NDQ-ntr pdu updating the CO, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 400B.
9. (only available if the Context Retention functional unit is selected and a CO exists in the VTE with high priority).
check that on receipt of a valid HDQ pdu updating the CO, the IUT issues a VDATind-h to the VT-user;
NOTE the IUT should remain in state 400B.
10. (only available if the Context Retention functional unit is selected).
check that on receipt of a VSWPreq with an object retention list containing references to all the objects that have been updated and with a profile and parameters which would not invalidate retention, if an NDQ is stored, the IUT sends a valid NDQ-ntr pdu;
check that the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21Q.
11. (only available if the Context Retention functional unit is selected).
check that on receipt of a valid SPR pdu (scc), if any NDQs are stored, the IUT issues VDATind-ntr's to the VT-user;
check that the IUT issues a VSWPcnf to the VT-user;
check that the information held in the display objects and the control objects specified in the retention list of the switch profile is still present;
NOTE the IUT should exit to state 400B.

12. check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 400B.
13. check that on receipt of a VDATreq-n, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 400B.
14. check that on receipt of a valid RTQ pdu, the IUT sends a valid GTQ pdu;
NOTE the IUT should remain in state 400B.

15. check that on receipt of a valid SPQ pdu with an unacceptable profile, the IUT sends a valid but failing SPR pdu;
NOTE the IUT should remain in state 400B.

16. check that on receipt of a valid SPQ pdu with an acceptable profile, if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.
17. check that on receipt of a failing VSWPrsp, the IUT sends a valid but failing SPR pdu;
NOTE the IUT should exit to state 400B.

18. check that on receipt of a valid SPQ pdu with an acceptable profile, the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.

19. check that on receipt of a VSWPrsp, if there is a stored NDQ, the IUT sends a valid NDQ-ntr pdu;
check that the IUT sends a valid SPR pdu;
NOTE the IUT should exit to state 400B.

20. (only available if the Context Retention functional unit is selected).
check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 400B.
21. (only available if the Context Retention functional unit is selected).
check that on receipt of a VDATreq-n, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 400B.
22. (only available if the Context Retention functional unit is selected and a CO exists in the VTE with normal priority).
check that on receipt of a valid NDQ-ntr pdu updating the CO, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 400B.
23. (only available if the Context Retention functional unit is selected and a CO exists in the VTE with high priority).
check that on receipt of a valid HDQ pdu updating the CO, the IUT issues a VDATind-h to the VT-user;
NOTE the IUT should remain in state 400B.
24. (only available if the Context Retention functional unit is selected).
check that on receipt of a valid SPQ pdu with an object retention list containing references to all the objects that have been updated and with a profile and parameters which would not invalidate retention, if any NDQs are stored, the IUT issues VDATind-ntr's to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.
25. (only available if the Context Retention functional unit is selected).
check that on receipt of VSWPrsp, if there is a stored NDQ, the IUT sends a valid NDQ-ntr pdu;
check that the IUT sends a valid SPR pdu;
check that the information held in the display objects and the control objects specified in the retention list of the switch profile is still present;
NOTE the IUT should exit to state 400B.

26. use the no tokens held postamble to exit to state 01.

12.1.2.3.4 BV/SE/NI/ASP/normal switch profile negotiation with mode switch (MSD)

Test group objective: Test valid protocol behaviour during normal A-mode switch profile negotiation when mode switching occurs.

Test purposes:

1. use preamble 20B (the VT-association being set up with the VT-mode parameter set to either-A and the VSWPreq specifying an S-mode profile); the LT should send and NDQ mapped on to P-TYPED-DATA;
check that the IUT sends an NDQ mapped on to P-TYPED-DATA;

2. check that on receipt of a valid GTQ pdu, the IUT sends a valid a SPQ pdu;
NOTE the IUT should exit to state 21Q.
3. check that on receipt of a valid SPR pdu (scc), if an NDQ is stored, the IUT issues a VDATind-ntr to the VT-user;
check that the IUT issues a VSWPcnf to the VT-user;
NOTE the IUT should exit to state 40T.
4. check that on receipt of a VDATreq-n from the VT-user, if the IUT decides to deliver, it sends a valid NDQ- ntr pdu mapped on to P-TYPED-DATA;
NOTE the IUT should remain in state 40T.

5. check that on receipt of a VSWPreq from the VT-user specifying an A-mode profile, if there is a stored NDQ, the IUT sends a valid NDQ-ntr pdu mapped on to P-TYPED-DATA;
check that the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21T.
6. check that on receipt of a valid SPR pdu (scc), the IUT issues a VSWPcnf to the VT-user;
NOTE the IUT should exit to state 400B.

7. use the tokens held postamble to exit to state 01.

12.1.2.3.5 BV/SE/NI/ASP/collisions with deliver (CDEL)

Test group objective: This test group may only be executed if simple or quarantined delivery control is supported and selected. The objective is to test valid protocol behaviour of A-mode switch profile negotiation when collisions occur with delivery control pdus with acknowledgement.

Test purposes:

1. use preamble 20B.
2. check that on receipt of a valid DLQ with Ack pdu the IUT does nothing;
NOTE the IUT should remain in state 20B;
3. check that on receipt of a valid GTQ pdu, the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21Q.
4. use the common test sequence below.

5. use the tokens held postamble to exit to state 01.

6. Use preamble 21Q.
7. check that on receipt of a valid DLQ with Ack pdu the IUT does nothing;
NOTE the IUT should remain in state 21Q;
8. use the common test sequence below.

9. use the tokens held postamble to exit to state 01.

Common test sequence:

10. check that on receipt of a valid but failing with collision detected SPR pdu, the IUT issues a failing VSWPcnf to the VT-user; check that if there is a stored NDQ, the IUT issues VDATind-n to the VT-user; check that the IUT issues a VDELEind with ack to the VT-user;
NOTE the IUT should exit to state 402B;
11. check that on receipt of a VDACKreq, the IUT sends a valid DAQ pdu;
NOTE the IUT should exit to state 400B.

12.1.2.3.6 BV/SE/NI/ASP/collisions with switch profile (CSWP)

Test group objective: To test valid behaviour when a switch profile negotiation collides with another switch profile negotiation.

Test purposes:

1. the S20B preamble is used;
2. check that on receipt of a valid SPQ pdu with an unacceptable profile, the IUT issues a failing VSWPcnf to the VT-user; check that the IUT sends a valid but failing SPR pdu;
NOTE the IUT should exit to state 400B.

3. check that on receipt of a VSWPreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 20B.

4. check that on receipt of a valid SPQ pdu with an acceptable profile, the IUT issues a failing VSWPcnf to the VT-user; check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user; check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.
5. check that on receipt of a failing VSWPrsp, the IUT sends a valid but failing SPR pdu;
NOTE the IUT should exit to state 400B.

6. check that on receipt of a VSWPreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 20B.
7. check that on receipt of a valid SPQ pdu with an acceptable profile, the IUT issues a failing VSWPcnf to the VT-user; check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.
8. check that on receipt of a VSWPrsp, the IUT sends a valid SPR pdu;
NOTE the IUT should exit to state 400B.

9. use the no tokens held postamble to return to state 01.

12.1.2.3.7 BV/SE/NI/ASP/collisions with MIN (CMIN)

Test group objective: This test group may only be executed when the MIN functional unit is supported and selected. The objective is to test valid behaviour when a switch profile negotiation collides with a start negotiation.

Test purposes:

1. the S20B preamble is used;
2. check that on receipt of a valid SNQ pdu with an unacceptable profile, the IUT issues a failing VSWPcnf to the VT-user; check that the IUT sends a valid but failing SNR pdu;
NOTE the IUT should exit to state 400B.

3. check that on receipt of a VSWPreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 20B.
4. check that on receipt of a valid SNQ pdu with an acceptable profile, the IUT issues a failing VSWPcnf to the VT-user; check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user; check that the IUT issues a VSNEGind to the VT-user;
NOTE the IUT should exit to state 31R.

5. check that on receipt of a failing VSNEGrsp, the IUT sends a valid but failing SNR pdu;
NOTE the IUT should exit to state 400B.

6. check that on receipt of a VSWPreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 20B.
7. check that on receipt of a valid SNQ pdu with an acceptable profile, the IUT issues a failing VSWPcnf to the VT-user;
check that the IUT issues a VSNEGind to the VT-user;
NOTE the IUT should exit to state 31R.
8. check that on receipt of a VSNEGrsp, the IUT sends a valid SNR pdu;
NOTE the IUT should exit to state 36R.
9. check that on receipt of a valid ENQ pdu with acceptable parameters, the IUT issues a VENEGind to the VT-user;
NOTE the IUT should exit to state 37R.
10. check that on receipt of a VENEGrsp, the IUT sends a valid ENR pdu;
NOTE the IUT should exit to state 400B.

11. use the tokens not held postamble to return to state 01.

12.1.2.3.8 BV/SE/NI/ASP/collisions with release (CREL)

Test group objective: To test valid behaviour when a switch profile negotiation collides with a release.

Test purposes:

1. the S20B preamble is used;
2. check that on receipt of a valid RLQ pdu, the IUT issues a failing VSWPcnf to the VT-user;
check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VRELind to the VT-user;
NOTE the IUT should exit to state 51R.
3. check that on receipt of a VRELrsp, the IUT sends a valid RLR pdu;
NOTE the IUT should exit to state 01.

12.1.2.3.9 BV/SE/NI/ASP/remainder of state 20B intersections (S20B)

Test group objective: To check the valid operation of the remaining intersections of state 20B.

Test purposes:

1. the S20B preamble is used;
2. (only if the exceptions and the break functional units are selected) check that on receipt of a valid EXQ pdu, the IUT issues a VPEXind to the VT-user;
NOTE the IUT should exit to state 71.

3. (only if the exceptions and the break functional units are selected) check that on receipt of a VBRKreq, the IUT sends a valid BKQ pdu;

NOTE the IUT should exit to state 61;

4. (only if the exceptions and the break functional units are selected) check that on receipt of a valid BKR pdu, the IUT issues a VBRKcnf to the VT-user;
NOTE the IUT should exit to state 400B.
5. (only if the exceptions and the break functional units are selected) check that on receipt of a VSWPreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 20B.

6. (only if Break functional unit available and selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62.
7. (only if Break functional unit available and selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 400B.
8. (only if Break functional unit available and selected)
check that on receipt of a VSWPreq from the VT-user, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 20B.

9. (only if a high priority CO is defined in the VTE) check that on receipt of a valid HDQ pdu, the IUT issues a VDATind-h to the VT-user;
NOTE the IUT should remain in state 20B.

10. (only if an urgent priority CO is defined in the VTE) check that on receipt of a valid UDQ pdu, the IUT issues a VDATind-u to the VT-user;
NOTE the IUT should remain in state 20B.

11. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);
NOTE the IUT should remain in state 20B.
12. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-tr pdu, the IUT issues one or two VDATind-n to the VT-user;
check that the IUT issues a VDATind-n (for trigger CO) to the VT-user;
NOTE the IUT should remain in state 20B.

13. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);

NOTE the IUT should remain in state 20B.

14. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid DLQ pdu, the IUT issues one or two VDATind-n to the VT-user;
check that the IUT issues a VDELind to the VT-user;

NOTE the IUT should remain in state 20B;

15. check that on receipt of a valid GTQ pdu, the IUT sends a valid SPQ pdu;

NOTE the IUT should exit to state 21Q.

16. check that on receipt of a valid SPR pdu, the IUT issues a VSWPcnf to the VT-user;

NOTE the IUT should exit to state 400B.

17. use the tokens held postamble to exit to state 01.

12.1.2.3.10 BV/SE/NI/ASP/remainder of state 21Q intersections (S21Q)

Test group objective: To check the valid operation of the remaining intersections of state 21Q.

Test purposes:

1. the S21Q preamble is used;
2. (only if the exceptions and the break functional units are selected) check that on receipt of a valid EXQ pdu, the IUT issues a VPExind to the VT-user;
NOTE the IUT should exit to state 71.
3. (only if the exceptions and the break functional units are selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62;
4. (only if the exceptions and the break functional units are selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 400B.
5. (only if the exceptions and the break functional units are selected) check that on receipt of a VSWPreq, the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21Q.

6. (only if Break functional unit available and selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62.
7. (only if Break functional unit available and selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;

NOTE the IUT should exit to state 400B.

8. (only if Break functional unit available and selected) check that on receipt of a VSWPreq, the IUT sends a valid SPQ pdu;

NOTE the IUT should exit to state 21Q.

9. (only if a high priority CO is defined in the VTE) check that on receipt of a valid HDQ pdu, the IUT issues a VDATind-h to the VT-user;

NOTE the IUT should remain in state 21Q.

10. (only if an urgent priority CO is defined in the VTE) check that on receipt of a valid UDQ pdu, the IUT issues a VDATind-u to the VT-user;

NOTE the IUT should remain in state 21Q.

11. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);

NOTE the IUT should remain in state 21Q.

12. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-tr pdu, the IUT issues one or two VDATind-n to the VT-user;

check that the IUT issues a VDATind-n

(for trigger CO) to the VT-user;

NOTE the IUT should remain in state 21Q.

13. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);

NOTE the IUT should remain in state 21Q.

14. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid DLQ pdu, the IUT issues one or two VDATind-n to the VT-user;

check that the IUT issues a VDELind to the VT-user;

NOTE the IUT should remain in state 21Q;

15. check that on receipt of a valid RTQ pdu, the IUT does nothing;

NOTE The IUT should remain in state 21Q.

16. check that on receipt of a valid SPR pdu, the IUT issues a VSWPcnf to the VT-user;

NOTE the IUT should exit to state 400B.

17. use the tokens held postamble to exit to state 01.

12.1.2.4 BV/SE/NI/S-mode switch profile (SSP)

Test group objective: Test valid protocol behaviour during S-mode switch, profile negotiation.

Test groups:

1. Normal switch profile negotiation (SP).
2. Normal switch profile negotiation with mode switch (MSP).

12.1.2.4.1 Preamble for BV/SE/NI for S-mode switch profile tests

This preamble is used for switch profile tests. The conditions for the start of testing are that an S-mode association is required with switch profile selected, with the token at the LT and with the incoming data queue at the IUT primed. The preamble specified in clause C.2.5 may be used.

12.1.2.4.2 Preamble for BV/SE/NI for S-mode switch profile tests with mode switch

This preamble is used for switch profile tests with mode switching. The conditions for the start of testing are that an association is required set up with either-S and with switch profile selected, with the token at the LT and with the incoming data queue at the IUT primed. The preamble specified in clause C.2.6 may be used.

12.1.2.4.3 Postamble for BV/SE/NI for S-mode switch profile tests

This postamble is used to exit from state 40T. The postamble defined in clause C.2.7 may be used.

12.1.2.4.4 Postamble for BV/SE/NI for S-mode switch profile tests with mode switch

This postamble is used to exit from state 40N. The postamble defined in clause C.2.8 may be used.

12.1.2.4.5 BV/SE/NI/SSP/normal switch profile negotiation (SP)

Test group objective: Test valid protocol behaviour during normal S-mode switch profile negotiation.

Test purposes:

1. use the switch profile preamble;

2. check that on receipt of a valid SPQ pdu with an unacceptable profile, the IUT sends a valid but failing SPR pdu;
NOTE the IUT should remain in state 40N.

3. check that on receipt of a valid SPQ pdu with an acceptable profile, if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21N.

4. check that on receipt of a failing VSWPrsp, the IUT sends a valid but failing SPR pdu;
NOTE the IUT should exit to state 40N.

5. check that on receipt of a valid SPQ pdu with an acceptable profile, the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21N.

6. check that on receipt of a VSWPrsp, the IUT sends a valid SPR pdu;
NOTE the IUT should exit to state 40N.

7. (only available if the Context Retention functional unit is selected).
check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 40N.

8. (only available if the Context Retention functional unit is selected and a CO exists in the VTE with normal priority).
check that on receipt of a valid NDQ-ntr pdu updating the CO, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 40N.

9. (only available if the Context Retention functional unit is selected and a CO exists in the VTE with high priority).
check that on receipt of a valid HDQ pdu updating the CO, the IUT issues a VDATind-h to the VT-user;
NOTE the IUT should remain in state 40N.

10. (only available if the Context Retention functional unit is selected).
check that on receipt of a valid SPQ pdu with an object retention list containing references to all the objects that have been updated and with a profile and parameters which would not invalidate retention, if any NDQs are stored, the IUT issues VDATind-ntr's to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21N.

11. (only available if the Context Retention functional unit is selected).
check that on receipt of VSWPrsp, the IUT sends a valid SPR pdu;
check that the information held in the display object and the control objects specified in the retention list of the switch profile is still present;

NOTE the IUT should exit to state 40N.

12. check that on the receipt of a VRQTreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should remain in state 40N.
 13. check that on receipt of a valid GTQ pdu, the IUT issues a VGVTind to the VT-user;
NOTE the IUT should exit to state 40T.
 14. check that on receipt of a VDATreq-n, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 40T.
-
15. check that on receipt of a VSWPreq, if an NDQ is stored, the IUT sends a valid NDQ-ntr pdu;
Check that the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21T.
 16. check that on receipt of a valid but failing SPR pdu, the IUT issues a failing VSWPcnf to the VT-user;
NOTE the IUT should exit to state 40T.
-
17. check that on receipt of a VSWPreq, the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21T.
 18. check that on receipt of a valid SPR pdu (scc), the IUT issues a VSWPcnf to the VT-user;
NOTE the IUT should exit to state 40T.
 19. (only available if the Context Retention functional unit is selected).
check that on receipt of a VDATreq-n, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 40T.
 20. (only available if the Context Retention functional unit is selected and a CO exists in the VTE with normal priority).
check that on receipt of a VDATreq-n updating the CO, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 40T.
 21. (only available if the Context Retention functional unit is selected and a CO exists in the VTE with high priority).
check that on receipt of a VDATind-h updating the CO, the IUT sends a valid HDQ pdu;
NOTE the IUT should remain in state 40T.

22. (only available if the Context Retention functional unit is selected).

check that on receipt of a VSWPreq with an object retention list containing references to all the objects that have been updated and with a profile and parameters which would not invalidate retention, if any NDQs are stored, the IUT sends valid NDQ-ntr pdus; check that the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21T.

23. (only available if the Context Retention functional unit is selected).

check that on receipt of a valid SPR pdu (scc), the IUT issues a VSWPcnf to the VT-user;
check that the information held in the display object and the control objects specified in the retention list of the switch profile is still present;
NOTE the IUT should exit to state 40T.

24. check that on receipt of a VSWPreq, the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21T.
 25. (only if the exceptions and the break functional units are selected) check that on receipt of a valid EXQ pdu, the IUT issues a VPExind to the VT-user;
NOTE the IUT should exit to state 71.
 26. (only if the exceptions and the break functional units are selected) check that on receipt of a VBRKreq, the IUT sends a valid BKQ pdu;
NOTE the IUT should exit to state 61;
 27. (only if the exceptions and the break functional units are selected) check that on receipt of a valid BKR pdu, the IUT issues a VBRKcnf to the VT-user;
NOTE the IUT should exit to state 40T.
 28. (only if the exceptions and the break functional units are selected) check that on receipt of a VSWPreq, the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21T.
-
29. (only if Break functional unit available and selected)
check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62.

30. (only if Break functional unit available and selected)
check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 40T.
31. (only if Break functional unit available and selected)
check that on receipt of a VSWPreq, the IUT sends a valid SPQ pdu;
NOTE the IUT should exit to state 21T.
-
32. (only if a high priority CO is defined in the VTE) check that on receipt of a valid HDQ pdu, the IUT issues a VDATind-h to the VT-user;
NOTE the IUT should remain in state 21T.
-
33. (only if an urgent priority CO is defined in the VTE)
check that on receipt of a valid UDQ pdu, the IUT issues a VDATind-u to the VT-user;
NOTE the IUT should remain in state 21T.
-
34. check that on receipt of a valid RTQ pdu, the IUT issues a VRQTind to the VT-user;
NOTE the IUT should remain in state 21T.
-
35. check that on receipt of a valid SPR pdu (scc), the IUT issues a VSWPcnf to the VT-user;
NOTE the IUT should exit to state 40T.
-

12.1.2.4.6 BV/SE/NI/SSP/normal switch profile negotiation with mode switch (MSP)

Test group objective: Test valid protocol behaviour during normal S-mode switch profile negotiation when mode switching occurs.

Test purposes:

1. use the mode switch preamble;
2. check that on receipt of a valid SPQ pdu with an acceptable profile and specifying an A-mode profile, if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21N.

3. check that on receipt of a VSWPrsp, the IUT sends a valid SPR pdu;
NOTE the IUT should exit to state 400B.
4. check that on receipt of a valid NDQ-ntr pdu mapped on to P-TYPED-DATA, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;
NOTE the IUT should remain in state 400B.
5. check that on receipt of a VDATreq-n, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu mapped on to P-TYPED-DATA;
NOTE the IUT should remain in state 400B.
6. check that on receipt of a valid SPQ pdu with an acceptable profile and specifying an S-mode profile, if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.
7. check that on receipt of a VSWPrsp, if there is a stored NDQ, the IUT sends a valid NDQ-ntr pdu mapped on to P-TYPED-DATA;
check that the IUT sends a valid SPR pdu;
NOTE the IUT should exit to state 40N.
8. use the mode switch postamble to exit to state 01.

12.1.2.5 BV/SE/NI/A-mode MIN (AMIN)

Test group objective: This test group may only be executed if the MIN functional unit is supported and selected. The objective is to test valid protocol behaviour during A-mode multiple interaction negotiation initiation.

1. Normal MIN (MIN).
2. Collisions with deliver (CDEL).
3. Collisions with switch profile (CSWP).
4. Collisions with MIN (CMIN).
5. Collisions with release (CREL).
6. Remainder of state 30B intersections (S30B).
7. Remainder of state 31Q intersections (S31Q).

12.1.2.5.1 Preamble 30B for BV/SE/NI/AMIN

This preamble is used for those test groups that need to start in state 30B. The conditions required for starting these test groups are that there is an A-mode association with MIN selected, internal data queues are primed and that MIN has been initiated leaving the IUT in state 30B. The preamble defined in clause C.2.9 may be used.

12.1.2.5.2 Preamble 31Q for BV/SE/NI/AMIN

This preamble is used for those test groups that need to start in state 31Q. The conditions required for starting these test groups are that there is an A-mode association with MIN selected, internal data queues are primed and that MIN has been initiated leaving the IUT in state 31Q. The preamble defined in clause C.2.10 may be used.

12.1.2.5.3 BV/SE/NI/AMIN/normal MIN (MIN)

Test group objective: Test valid protocol behaviour during, normal A-mode multiple interaction negotiation.

Test purposes:

1. use preamble 30B;

2. check that on receipt of a valid GTQ pdu, the IUT sends a valid a SNQ pdu;

NOTE the IUT should exit to state 31Q.

3. check that on receipt of a valid but failing SNR pdu, the IUT issues a failing VSNEGcnf to the VT-user;

NOTE the IUT should exit to state 400B

4. check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;

NOTE the IUT should exit to state 31Q.

5. check that on receipt of a valid SNR pdu (sc), if an NDQ is stored, the IUT issues a VDATind-ntr to the VT-user; check that the IUT issues a VSNEGcnf to the VT-user;

NOTE the IUT should exit to state 35Q.

6. check that on receipt of a VENEGreq, the IUT sends a valid ENQ pdu;

NOTE the IUT should exit to state 37Q.

7. check that on receipt of a valid ENR pdu, the IUT issues a VENEGcnf to the VT-user;

NOTE the IUT should exit to state 400B.

8. check that on receipt of a valid NDQ-ntr pdu, if the IUT decides to deliver, it issues a VDATind-n to the VT-user;

NOTE the IUT should remain in state 400B.

9. check that on receipt of a VDATreq-n, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;

NOTE the IUT should remain in state 400B.

10. check that on receipt of a valid RTQ pdu, the IUT sends a valid GTQ pdu;

NOTE the IUT should remain in state 400B.

11. check that on receipt of a valid SNQ pdu with an unacceptable profile, the IUT sends a valid but failing SNR pdu;

NOTE the IUT should remain in state 400B.

12. check that on receipt of a valid SNQ pdu with an acceptable profile, if there is a stored NDQ, the IUT issues a VDATind to the VT-user;

check that the IUT issues a VSNEGind to the VT-user;

NOTE the IUT should exit to state 31R.

13. check that on receipt of a failing VSNEGrsp, the IUT sends a valid but failing SNR pdu;

NOTE the IUT should exit to state 400B.

14. check that on receipt of a valid SNQ pdu with an acceptable profile, the IUT issues a VSNEGind to the VT-user;

NOTE the IUT should exit to state 31R.

15. check that on receipt of a VSNEGrsp, if there is a stored NDQ, the IUT sends a valid NDQ-ntr pdu;

check that the IUT sends a valid SNR pdu;

NOTE the IUT should exit to state 36R.

16. check that on receipt of a valid ENQ pdu with acceptable parameters, the IUT issues a VENEGind to the VT-user;

NOTE the IUT should exit to state 37R.

17. check that on receipt of a VENEGrsp, the IUT sends a valid ENR pdu;

NOTE the IUT should exit to state 400B.

18. use the no tokens held postamble to exit to state 01.

12.1.2.5.4 BV/SE/NI/AMIN/collisions with deliver (CDEL)

Test group objective: This test group may only be executed if simple or quarantined delivery control is supported and selected. The objective is to test valid protocol behaviour of A-mode multiple interaction negotiation when collisions occur with delivery control pdus with acknowledgement.

Test purposes:

1. use preamble 30B;
 2. check that on receipt of a valid DLQ with Ack pdu the IUT does nothing;
NOTE the IUT should remain in state 30B;
 3. check that on receipt of a valid GTQ pdu, the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31Q.
 4. use the common test sequence below.
 5. use the tokens held postamble to exit to state 01;
-
6. use preamble 31Q;
 7. check that on receipt of a valid DLQ with Ack pdu the IUT does nothing;
NOTE the IUT should remain in state 31Q;
 8. use the common test sequence below;
 9. use the tokens held postamble to exit to state 01.
-

Common test sequence:

10. check that on receipt of a valid but failing with collision detected SNR pdu, the IUT issues a failing VSNEGcnf to the VT-user; check that if there is a stored NDQ, the IUT issues VDATind-n to the VT-user; check that the IUT issues a VDELind with ack to the VT-user;
NOTE the IUT should exit to state 402B;
11. check that on receipt of a VDACReq, the IUT sends a valid DAQ pdu;
NOTE the IUT should exit to state 400B.

12.1.2.5.5 BV/SE/NI/AMIN/collisions with switch profile (CSWP)

Test group objective: To test valid behaviour when a multiple interaction negotiation collides with a switch profile negotiation.

Test purposes:

1. the S30B preamble is used;
 2. check that on receipt of a valid SPQ pdu with an unacceptable profile, the IUT issues a failing VSNEGcnf to the VT-user;
check that the IUT sends a valid but failing SPR pdu;
NOTE the IUT should exit to state 400B.
-
3. check that on receipt of a VSNEGreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 30B.

4. check that on receipt of a valid SPQ pdu with an acceptable profile, the IUT issues a failing VSNEGcnf to the VT-user;
check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.
 5. check that on receipt of a failing VSWPrsp, the IUT sends a valid but failing SPR pdu;
NOTE the IUT should exit to state 400B.
-

6. check that on receipt of a VSNEGreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 30B.
7. check that on receipt of a valid SPQ pdu with an acceptable profile, the IUT issues a failing VSNEGcnf to the VT-user;
check that the IUT issues a VSWPind to the VT-user;
NOTE the IUT should exit to state 21R.
8. check that on receipt of a VSWPrsp, the IUT sends a valid SPR pdu;
NOTE the IUT should exit to state 400B.
9. use the no tokens held postamble to return to state 01.

12.1.2.5.6 BV/SE/NI/AMIN/collisions with MIN (CMIN)

Test group objective: This test group may only be executed when the MIN functional unit is supported and selected. The objective is to test valid behaviour when a multiple interaction negotiation collides with another start negotiation.

Test purposes:

1. the S30B preamble is used.
 2. check that on receipt of a valid SNQ pdu with an unacceptable profile, the IUT issues a failing VSNEGcnf to the VT-user;
check that the IUT sends a valid but failing SNR pdu;
NOTE the IUT should exit to state 400B.
-
3. check that on receipt of a VSNEGreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 30B.
 4. check that on receipt of a valid SNQ pdu with an acceptable profile, the IUT issues a failing VSNEGcnf to the VT-user;
check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user;

check that the IUT issues a VSNEGind to the VT-user;

NOTE the IUT should exit to state 31R.

5. check that on receipt of a failing VSNEGrsp, the IUT sends a valid but failing SNR pdu;
NOTE the IUT should exit to state 400B.

6. check that on receipt of a VSNEGreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 30B.
7. check that on receipt of a valid SNQ pdu with an acceptable profile, the IUT issues a failing VSNEGcnf to the VT-user;
check that the IUT issues a VSNEGind to the VT-user;
NOTE the IUT should exit to state 31R.
8. check that on receipt of a VSNEGrsp, the IUT sends a valid SNR pdu;
NOTE the IUT should exit to state 36R.
9. check that on receipt of a valid ENQ pdu with acceptable parameters, the IUT issues a VENEGind to the VT-user;
NOTE the IUT should exit to state 37R.
10. check that on receipt of a VENEGrsp, the IUT sends a valid ENR pdu;
NOTE the IUT should exit to state 400B.
11. use the tokens not held postamble to return to state 01.

12.1.2.5.7 BV/SE/NI/AMIN/collisions with release (CREL)

Test group objective: To test valid behaviour when a multiple interaction negotiation collides with a release.

Test purposes:

1. the S30B preamble is used;
2. check that on receipt of a valid RLQ pdu, the IUT issues a failing VSNEGcnf to the VT-user;
check that if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VRELind to the VT-user;
NOTE the IUT should exit to state 51R.
3. check that on receipt of a VRELrsp, the IUT sends a valid RLR pdu;
NOTE the IUT should exit to state 01.

12.1.2.5.8 BV/SE/NI/AMIN/remainder of state 30B intersections (S30B)

Test group objective: To check the valid operation of the remaining intersections of state 30B.

Test purposes:

1. the S30B preamble is used;
 2. (only if the exceptions and the break functional units are selected) check that on receipt of a valid EXQ pdu, the IUT issues a VPExind to the VT-user;
NOTE the IUT should exit to state 71.
 3. (only if the exceptions and the break functional units are selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62;
 4. (only if the exceptions and the break functional units are selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 400B.
 5. (only if the exceptions and the break functional units are selected) check that on receipt of a VSNEGreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 30B.
-
6. (only if Break functional unit available and selected)
check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62.
 7. (only if Break functional unit available and selected)
check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 400B.
 8. (only if Break functional unit available and selected)
check that on receipt of a VSNEGreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should exit to state 30B.

9. (only if a high priority CO is defined in the VTE) check that on receipt of a valid HDQ pdu, the IUT issues a VDATind-h to the VT-user;
NOTE the IUT should remain in state 30B.

10. (only if an urgent priority CO is defined in the VTE) check that on receipt of a valid UDQ pdu, the IUT issues a VDATind-u to the VT-user;
NOTE the IUT should remain in state 30B.

11. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);

NOTE the IUT should remain in state 30B.

12. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-tr pdu, the IUT issues one or two VDATind-n to the VT-user;

check that the IUT issues a VDATind-n (for trigger CO) to the VT-user;

NOTE the IUT should remain in state 30B.

13. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);

NOTE the IUT should remain in state 30B.

14. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid DLQ pdu, the IUT issues one or two VDATind-n to the VT-user;

check that the IUT issues a VDELind to the VT-user;

NOTE the IUT should remain in state 30B;

15. check that on receipt of a valid GTQ pdu, the IUT sends a valid SNQ pdu;

NOTE the IUT should exit to state 31Q.

16. check that on receipt of a valid but failing SNR pdu, the IUT issues a failing VSNEGcnf to the VT-user;

NOTE the IUT should exit to state 400B.

17. use the tokens held postamble to exit to state 01.

12.1.2.5.9 BV/SE/NI/AMIN/remainder of state 31Q intersections (S31Q)

Test group objective: To check the valid operation of the remaining intersections of state 31Q.

Test purposes:

1. the S31Q preamble is used;

2. (only if the exceptions and the break functional units are selected) check that on receipt of a valid EXQ pdu, the IUT issues a VPExind to the VT-user;

NOTE the IUT should exit to state 71.

3. (only if the exceptions and the break functional units are selected) check that on receipt of a VBRKreq, the IUT sends a valid BKQ pdu;

NOTE the IUT should exit to state 61;

4. (only if the exceptions and the break functional units are selected) check that on receipt of a valid BKR pdu, the IUT issues a VBRKcnf to the VT-user;

NOTE the IUT should exit to state 400B.

5. (only if the exceptions and the break functional units are selected) check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;

NOTE the IUT should exit to state 31Q.

6. (only if Break functional unit available and selected)

check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;

NOTE the IUT should exit to state 62.

7. (only if Break functional unit available and selected)

check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;

NOTE the IUT should exit to state 400B.

8. (only if Break functional unit available and selected)

check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;

NOTE the IUT should exit to state 31Q.

9. (only if a high priority CO is defined in the VTE) check that on receipt of a valid HDQ pdu, the IUT issues a VDATind-h to the VT-user;

NOTE the IUT should remain in state 31Q.

10. (only if an urgent priority CO is defined in the VTE) check that on receipt of a valid UDQ pdu, the IUT issues a VDATind-u to the VT-user;

NOTE the IUT should remain in state 31Q.

11. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);

NOTE the IUT should remain in state 31Q.

12. (only available if a trigger CO exists in the VTE) check that on receipt of a valid NDQ-tr pdu, the IUT issues one or two VDATind-n to the VT-user;

check that the IUT issues a VDATind-n (for trigger CO) to the VT-user;

NOTE the IUT should remain in state 31Q.

13. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid NDQ-ntr pdu, nothing happens (NDQ is stored);
NOTE the IUT should remain in state 31Q.
14. (only available if simple or quarantined delivery control is supported and selected) check that on receipt of a valid DLQ pdu, the IUT issues one or two VDATind-n to the VT-user;
check that the IUT issues a VDELin to the VT-user;
NOTE the IUT should remain in state 31Q;
-
15. check that on receipt of a valid RTQ pdu, nothing happens;
NOTE The IUT should remain in state 31Q.
-
16. check that on receipt of a valid but failing SNR pdu, the IUT issues a VSNEGcnf to the VT-user;
NOTE the IUT should exit to state 400B.
17. Use the tokens held postamble to exit to state 01.

12.1.2.6 BV/SE/NI/S-mode MIN (SMIN)

Preamble for BV/SE/NI/SMIN

This preamble is used for the S-mode MIN test group. The conditions required for starting this test groups are that there is an S-mode association with MIN selected, internal data queues are primed and that MIN has been initiated leaving the IUT in state 40N. The preamble defined in clause C.2.11 may be used.

Postamble for BV/SE/NI/SMIN

This postamble is used to exit from state 40T to state 01. The postamble defined in clause C.2.12 may be used.

Test group objective: Test valid protocol behaviour during S-mode multiple interaction negotiation initiation.

Test purposes:

1. the SMIN preamble is used;
-
2. check that on receipt of a valid SNQ pdu with an unacceptable profile, the IUT sends a valid but failing SNR pdu;
NOTE the IUT should remain in state 40N.
-

3. check that on receipt of a valid SNQ pdu with an acceptable profile, if there is a stored NDQ, the IUT issues a VDATind to the VT-user;
check that the IUT issues a VSNEGind to the VT-user;
NOTE the IUT should exit to state 31N.
4. check that on receipt of a failing VSNEGrsp, the IUT sends a valid but failing SNR pdu;
NOTE the IUT should exit to state 40N.
-
5. check that on receipt of a valid SNQ pdu with an acceptable profile, the IUT issues a VSNEGind to the VT-user;
NOTE the IUT should exit to state 31N.
6. check that on receipt of a VSNEGrsp, the IUT sends a valid SNR pdu;
NOTE the IUT should exit to state 36N.
7. check that on receipt of a valid ENQ pdu with acceptable parameters, the IUT issues a VENEGind to the VT-user;
NOTE the IUT should exit to state 37N.
8. check that on receipt of a VENEGrsp, the IUT sends a valid ENR pdu;
NOTE the IUT should exit to state 40N.
-
9. check that on the receipt of a VRQTreq, the IUT sends a valid RTQ pdu;
NOTE the IUT should remain in state 40N.
10. check that on receipt of a valid GTQ pdu, the IUT issues a VGVtind to the VT-user;
NOTE the IUT should exit to state 40T.
11. check that on receipt of a VDATreq-n, if the IUT decides to deliver, it sends a valid NDQ-ntr pdu;
NOTE the IUT should remain in state 40T.
-
12. check that on receipt of a VSNEGreq, if an NDQ is stored, the IUT sends a valid NDQ-ntr pdu;
check that the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31T.
13. check that on receipt of a valid but failing SNR pdu, the IUT issues a failing VSNEGcnf to the VT-user;
NOTE the IUT should exit to state 40T.
-
14. check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31T.

15. check that on receipt of a valid SNR pdu (scc), the IUT issues a VSNEGcnf to the VT-user;
NOTE the IUT should exit to state 36T.
 16. check that on receipt of a VENEGreq, the IUT sends a valid ENQ pdu;
NOTE the IUT should exit to state 37T.
 17. check that on receipt of a valid ENR pdu, the IUT issues a VENEGcnf to the VT-user;
NOTE the IUT should exit to state 40T.
-
18. check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31T.
 19. (only if the exceptions and the break functional units are selected) check that on receipt of a valid EXQ pdu, the IUT issues a VPEXind to the VT-user;
NOTE the IUT should exit to state 71.
 20. (only if the exceptions and the break functional units are selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62;
 21. (only if the exceptions and the break functional units are selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 40T.
 22. (only if the exceptions and the break functional units are selected) check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31T.
-
23. (only if Break functional unit available and selected) check that on receipt of a valid BKQ pdu, the IUT issues a VBRKind to the VT-user;
NOTE the IUT should exit to state 62.
 24. (only if Break functional unit available and selected) check that on receipt of a VBRKrsp, the IUT sends a valid BKR pdu;
NOTE the IUT should exit to state 40T.
 25. (only if Break functional unit available and selected)
check that on receipt of a VSNEGreq, the IUT sends a valid SNQ pdu;
NOTE the IUT should exit to state 31T.
-

26. (only if a high priority CO is defined in the VTE) check that on receipt of a valid HDQ pdu, the IUT issues a VDATind-h to the VT-user;
NOTE the IUT should remain in state 31T.
-

27. (only if an urgent priority CO is defined in the VTE) check that on receipt of a valid UDQ pdu, the IUT issues a VDATind-u to the VT-user;
NOTE the IUT should remain in state 31T.
-

28. check that on receipt of a valid RTQ pdu, the IUT issues a VRQTind to the VT-user;
NOTE the IUT should remain in state 31T.
-

29. check that on receipt of a valid but failing SNR pdu, the IUT issues a failing VSWPcnf to the VT-user;
NOTE the IUT should exit to state 40T.
-

30. use the SMIN postamble to exit to state 01.

12.1.3 BV/SE/sector 3 states — negotiation (MIN)

References: Sector 3 states are described in Table A.12 and Table A.13 of ISO 9041-1.

Test group objective: This test group may only be executed if the Multiple Interaction Negotiation functional unit is supported and selected. The objective is to test valid protocol behaviour in each valid state/event intersection for Sector 3 states.

Test groups:

A-mode

1. A-mode negotiating — IUT initiator (ANI)
2. A-mode negotiating — IUT responder (ANR)
3. A-mode end negotiation — IUT initiator (AENI)
4. A-mode end negotiation — IUT responder (AENR)

S-mode

5. S-mode negotiating (SN)
6. S-mode end negotiation — IUT initiating (SENI)
7. S-mode end negotiation — IUT responding (SENR)

Switch-mode

8. IUT initiator — either-A negotiation mappings (SWANI)
9. IUT responder — either-A negotiation mappings (SWANR)

10. Switch-mode starting in A-mode — IUT initiating (SWAENI)
11. Switch-mode starting in A-mode — IUT responding (SWAENR)
12. Switch-mode starting in S-mode — IUT initiating (SWSENI)
13. Switch-mode starting in S-mode — IUT responding (SWSENR)

12.1.3.1 Preambles and postambles

The following classification of preambles and postambles is made:

1. Preambles to enter data handling or quiescent states
2. Preambles to enter negotiating states
3. Preambles to get full and not full draft VTEs
4. Postambles to exit negotiating states
5. Postambles to exit data handling or quiescent states

12.1.3.1.1 Preambles to enter data handling or quiescent states

It is assumed that VTE-profiles used in the association exchange have profile arguments that allow the creation of a full-VTE and subsequent entry into the a data handling state or allow the creation of a non full-VTE and subsequent entry into a quiescent state. Failing this it assumed that the appropriate default profile is used, in which case it will not be possible to enter any quiescent state.

Preambles 1a to 1h are identified to enter the various states required. The preambles defined in clause C.3.1 may be used.

12.1.3.1.2 Preambles to enter negotiating states

Preambles 2a to 2h are identified to enter the various states required starting from a data handling or a quiescent state. The preambles defined in clause C.3.2 may be used.

12.1.3.1.3 Preambles to get full and not full draft VTEs

Preambles 3a to 3h are identified to the full and draft VTEs required to test negotiation termination. The preambles defined in clause C.3.3 may be used.

12.1.3.1.4 Postambles to exit negotiating states

Postambles 1a to 1d are identified to exit the various negotiating states to a data handling state. The preambles defined in clause C.3.4 may be used.

12.1.3.1.5 Postambles to exit data handling or quiescent states

Postambles 2a to 2d are identified to exit the various data handling and quiescent states to the no association state. The preambles defined in clause C.3.5 may be used.

12.1.3.2 BV/SE/MIN/A-mode negotiating — IUT initiator (ANI)

Test group objective: (This test group is only available if the IUT supports an A-mode profile.) To test valid protocol behaviour during negotiation in A-mode when the IUT plays the initiator role.

There are 3 negotiation streams with the following sequences:

- neg1: Invite, offer, reject; offer, counter offer, accept
- neg2: Offer, counter offer, reject; offer, accept
- neg3: Offer, reject; invite, offer, accept

Test purposes:

1. use preamble 1a to enter state 400B;
2. use preamble 2a to enter state 35Q;
NOTE throughout this test group, the IUT remains in state 35Q.
-
3. check that on receipt of a VNINV req for negotiation stream 1, the IUT sends a valid NIQ pdu;
4. check that on receipt of a VNOFF req for negotiation stream 2, the IUT sends a valid NOQ pdu;
5. check that on receipt of a VNOFF req for negotiation stream 3, the IUT sends a valid NOQ pdu;
-
6. check that on receipt of a valid NOQ pdu for negotiation stream 1, the IUT issues a VNOFFind to the VT-user;
7. check that on receipt of a valid NOQ pdu for negotiation stream 2, the IUT issues a VNOFFind to the VT-user;
8. check that on receipt of a valid NJQ pdu for negotiation stream 3, the IUT issues a VNREJind to the VT-user;
-
9. check that on receipt of a VNREJreq for negotiation stream 1, the IUT sends a valid NJQ pdu;
10. check that on receipt of a VNREJreq for negotiation stream 2, the IUT sends a valid NJQ pdu;
11. check that on receipt of a VNINVreq for negotiation stream 3, the IUT sends a valid NIQ pdu;
-
12. check that on receipt of a VNOFFreq for negotiation stream 1, the IUT sends a valid NOQ pdu;
13. check that on receipt of a VNOFFreq for negotiation stream 2, the IUT sends a valid NOQ pdu;