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SPECIFICATIONS OF SIGNALLING SYSTEM No. 7

SIGNALLING SYSTEM No. 7

SCCP TEST SPECIFICATION

ITU-T Recommendation Q.786

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation Q.786 was revised by the ITU-T Study Group XI (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

2 In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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SIGNALLING SYSTEM No. 7

SCCP TEST SPECIFICATION

(Helsinki, 1993)

1 Introduction

This Recommendation contains a detailed set of tests for the Signalling System No. 7 Signalling Connection Control Part (SCCP). These tests are intended to validate the protocol specified in Recommendations Q.711-Q.714. This Recommendation conforms to Recommendation Q.780, which describes the basic rules of the test specification.

2 Objective of the test specification

The objective of the test specification is to provide:

Validation – A level of confidence that a given implementation conforms to the Recommendations Q.711-Q.714 for SS No. 7 SCCP.

Compatibility – A level of confidence that two implementations of SS No. 7 SCCP are able to interwork.

In order to ensure that this test specification meets this objective, the following criteria are used:

1) The test specification is not intended to provide exhaustive testing of all aspects of the SS No. 7 SCCP.

2) All tests should be of a practical nature and implementable using the available technology.

3) The test should concentrate on the testing of a normal signalling procedure. Testing of an abnormal signalling procedure will only be identified where this is regarded as particularly useful.

4) The test list does not include any tests which are application specific (e.g. IN, mobile application, etc.). If such tests are required, they should be contained in application specific testing documentation.

3 Scope of the test

The test list is composed to validate routing/addressing and data transfer concerning connectionless SCCP procedures by monitoring and analysing SCCP messages and their contents. SCCP management, segmentation in connectionless SCCP test and connection-oriented procedures are for further study.

Some tests in this Recommendation require generation of primitives, therefore when performing these tests, appropriate normal system action of the user will have to be chosen which results indicating primitives being generated.

The testing of primitives is outside the scope of this Recommendation. Both messages and primitives are shown in expected message sequence diagram as indicated below, but primitives are shown for ease of understanding only.

PRIMITIVE

==========>

MESSAGE

.....>

An internal routing of SCCP user data is implementation dependent, and therefore all tests related to internal routing may not be possible to execute. In addition, access to various test interfaces may not be available in all implementations.

4 General principles of tests

The tests are described as "Validation(VAT)" tests or "Validation" and "Compatibility(CPT)" tests. Each test description indicates in the field "type of test" whether the test is a "Validation" test or a "Validation" and "Compatibility" test.

All questions and checks in the test description should be answered with positive acknowledgement for correct operations.

Where particular failure conditions are tested with or without the return option set, the test with the return option not set should use the same pre-test conditions and data, with the exception of the return option parameter as the corresponding test with the return option set.

Some of the described validation tests may not be required to be executed, since the functionality they aim to test is not included in the Implementation Under Test (IUT). In such a case the non-execution of such a test should not be regarded as a non-conformance statement.

For the test cases which result in returning N-NOTICE indication primitive or UDTS message, N-UNIDATA request primitive or UDT message should include the sufficient information to return the N-NOTICE indication primitive or UDTS message.

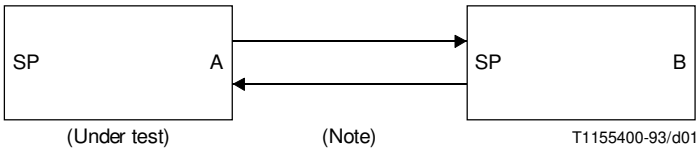
5 Test environment

5.1 SCCP relation

A signalling relation is required between "SP A" and "SP B" or among "SP A", "SP B" and "SP C" in order to carry out effective tests. Tested MTPs should be used for compatibility tests.

5.2 Configuration

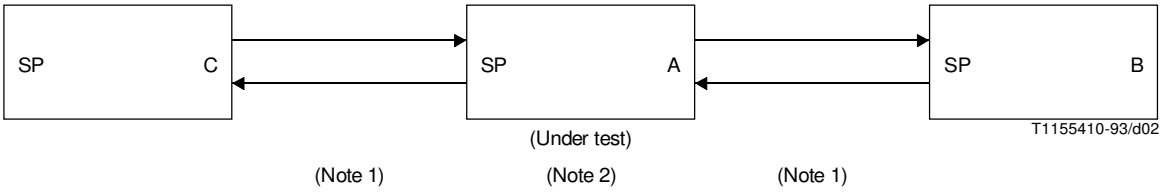
Two configurations are required to perform these tests as shown in Figure 1 and Figure 2.



NOTE – The arrows indicate an SCCP relation.

FIGURE 1/Q.786

Test configuration for SCCP – Configuration 1



NOTES

1 The arrows indicate an SCCP relation.

2 SP A is used as relay point.

FIGURE 2/Q.786

Test configuration for SCCP – Configuration 2

The configurations shown above are functional representations only, e.g. in Configuration 2, SP B and SP C could be the same or could belong to different MTP networks.

6 Test traffic

The details for test traffic and its format are for further study.

7 SCCP test list

* VAT & CPT

1 Connectionless procedure

1.1 SCCP Routing

1.1.1 Messages from SCCP users

1.1.1.1 Route not on GT

1.1.1.1.1 Local DPC and SSN included, DPC and SSN available

1.1.1.1.1.1 GT and SSN included

1.1.1.1.1.2 GT not included, SSN included

1.1.1.1.2 Local DPC and SSN included, SSN unavailable – Return option set

1.1.1.1.3 Local DPC and SSN included, SSN unavailable – Return option not set

* 1.1.1.1.4 Remote DPC and SSN included, DPC and SSN available

1.1.1.1.5 Remote DPC and SSN included, DPC and/or SSN unavailable – Return option set

1.1.1.1.6 Remote DPC and SSN included, DPC and/or SSN unavailable – Return option not set

1.1.1.2 Route on GT

1.1.1.2.1 GT translated to local DPC and SSN, and SSN available

1.1.1.2.1.1 SSN and GT included

1.1.1.2.1.2 SSN not included , GT included

1.1.1.2.2 GT translated to local DPC and SSN, and SSN unavailable – Return option set

1.1.1.2.3 GT translated to local DPC and SSN, and SSN unavailable – Return option not set

1.1.1.2.4 GT translated to remote DPC and SSN, and DPC and SSN available

1.1.1.2.4.1 SSN and GT included

* 1.1.1.2.4.2 SSN not included , GT included

1.1.1.2.5 GT translated to remote DPC and SSN, and DPC and/or SSN unavailable – Return option set

1.1.1.2.6 GT translated to remote DPC and SSN, and DPC and/or SSN unavailable – Return option not set

* 1.1.1.2.7 GT translated to DPC and new or as same GT, and DPC available

1.1.1.2.8 GT translation failed – Return option set

1.1.1.2.9 GT translation failed – Return option not set

1.1.2 Messages from MTP

1.1.2.1 Route on GT

* 1.1.2.1.1 GT translated to local DPC and SSN, and SSN available

* 1.1.2.1.2 GT translated to local DPC and SSN, and SSN unavailable – Return option set

* 1.1.2.1.3 GT translated to local DPC and SSN, and SSN unavailable – Return option not set

* 1.1.2.1.4 GT translated to remote DPC and SSN, and DPC and SSN available

* 1.1.2.1.5 GT translated to remote DPC and SSN, and DPC and/or SSN unavailable – Return option set

* 1.1.2.1.6 GT translated to remote DPC and SSN, and DPC and/or SSN unavailable – Return option not set

* 1.1.2.1.7 GT translated to DPC and new or as same GT, and DPC available

* 1.1.2.1.8 GT translation failed – Return option set

* 1.1.2.1.9 GT translation failed – Return option not set

1.1.2.2 Route not on GT

1.1.2.2.1 Local DPC and SSN, and SSN available

1.1.2.2.1.1 GT and SSN included

* 1.1.2.2.1.2 GT not included, SSN included

* 1.1.2.2.2 Local DPC and SSN unavailable – Return option set

* 1.1.2.2.3 Local DPC and SSN unavailable – Return option not set

1.2 Data transfer

1.2.1 Data transfer with sequential delivery capability

* 1.2.1.1 At originating node

* 1.2.1.2 At relay node

1.2.2 Data transfer with syntax error

1.2.3 Message Return

1.2.3.1 UDTS deliverable

1.2.3.1.1 UDTS deliverable to SCCP user

1.2.3.1.2 UDTS deliverable to other SP

1.2.3.2 UDTS undeliverable

1.2.3.2.1 UDTS undeliverable to SCCP user

1.2.4 Segmentation

Further Study

2 SCCP management

Further Study

3 Connection-oriented procedure

Further Study

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.1.1.1

REFERENCE: 2.3.2 3) c)/Q.714

TITLE: Message from SCCP users, route not on GT.

SUBTITLE: Local DPC and SSN included, DPC and SSN available GT and SSN included.

PURPOSE: To verify that the user data can be delivered to the correct SCCP user at SP A when routing not on GT.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - DPC of SP A
   - SSN
   - GT
2. Arrange the SCCP routing control data as follows:
   - SSN at SP A available

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	N-UNITDATA req. ==========>	
	N-UNITDATA ind. <==========	

TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to an SCCP user at SP A with a DPC and SSN of SP A in the request.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE DATA CORRECTLY DELIVERED TO THE SCCP USER AT SP A?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.1.1.2

REFERENCE: 2.3.2 3) c)/Q.714

TITLE: Messages from SCCP users, route not on GT.

SUBTITLE: Local DPC and SSN included, DPC and SSN available GT not included, SSN included.

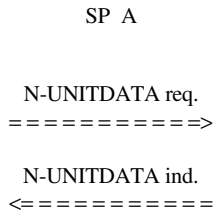
PURPOSE: To verify that the user data can be delivered to the correct SCCP user at SP A when routing not on GT.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - DPC of SP A
   - SSN
   - no GT
2. Arrange the SCCP routing control data as follows:
   - SSN at SP A available

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to a SCCP user at SP A with a DPC and SSN of SP A in the request.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE DATA CORRECTLY DELIVERED TO THE SCCP USER AT SP A?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.1.2

REFERENCE: 2.3.2 3) b)/Q.714

TITLE: Messages from SCCP users, route not on GT.

SUBTITLE: Local DPC and SSN included, SSN unavailable – Return option set.

PURPOSE: To verify that data is returned when routing not on GT and return option is set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - DPC of SP A
   - SSN
2. Arrange return option in N-UNITDATA request to be set
3. Arrange the SCCP routing control data as follows:
   - SSN at SP A unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
N-UNITDATA req.	==========>	
	N-NOTICE ind.	
	<==========	

TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to an SCCP user at SP A with a DPC and SSN of SP A in the request.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE SCCP USER ADVISED OF AN APPROPRIATE REASON FOR RETURN?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.1.3

REFERENCE: 2.3.2 3) b)/Q.714

TITLE: Messages from SCCP users, route not on GT.

SUBTITLE: Local DPC and SSN included, SSN unavailable – Return option not set.

PURPOSE: To verify that data is not returned when routing not on GT and return option is not set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   – DPC of SP A
   – SSN
2. Arrange return option in N-UNITDATA request not to be set
3. Arrange the SCCP routing control data as follows:
   – SSN at SP A unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	N-UNITDATA req. ==========>	

TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to an SCCP user at SP A with a DPC and SSN of SP A in the request.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: CONFIRM THAT DATA WAS NOT RETURNED TO SCCP USER.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.1.4

REFERENCE: 2.3.2 3) a)/Q.714

TITLE: Messages from SCCP users, route not on GT.

SUBTITLE: Remote DPC and SSN included, DPC and SSN available.

PURPOSE: To verify that a UDT message can be generated correctly to SP B when routing not on GT.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - DPC of SP B
   - SSN
   - no GT
2. Arrange the SCCP routing control data as follows:
   - DPC at SP B available
   - SSN at SP B available

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Arrange SP A to request generating a UDT message to SP B with a remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDT MESSAGE CORRECTLY GENERATED BY SP A TO SP B?
4.	CHECK B: WAS THE POINT CODE OF SP B CONTAINED IN THE MTP ROUTING LABEL OF THE UDT MESSAGE AND WAS THE SIO CORRECT?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

TEST NUMBER: 1.1.1.1.4 (*continued*)

CHECK TABLE (1/1)

UDT (SP A → SP B)

1)	Protocol class:	00000000 (Class 0, Return option is not set) or 10000000 (Class 0, Return option is set) or 00000001 (Class 1, Return option is not set) or 10000001 (Class 1, Return option is set)

Called Party Address

2)	Point Code Indicator (Note):	0 (Signalling point code is not included) or 1 (Signalling point code is included)
3)	SSN Indicator:	1 (SSN is included)
4)	Global Title Indicator:	0000 (No global title is included)
5)	Routing Indicator:	1 (Routing on DPC)
6)	Signalling Point Code (Note):	DPC of SP B (if Point Code Indicator equals to 1)
7)	Sub-system Number:	SSN at SP B

NOTE – Inclusion of DPC in Called Party Address is implementation dependent for this test.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.1.5

REFERENCE: 2.3.2 3) b)/Q.714

TITLE: Messages from SCCP users, route not on GT.

SUBTITLE: Remote DPC and SSN included, DPC and/or SSN unavailable – Return option set.

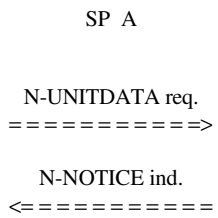
PURPOSE: To verify that data is returned when routing not on GT and return option is set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - DPC of SP B
   - SSN
   - no GT
2. Arrange return option in N-UNITDATA request to be set
3. Arrange the SCCP routing control data as follows:
   - DPC of SP B unavailable and/or
   - SSN at SP B unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to SP B with a remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE SCCP USER ADVISED OF AN APPROPRIATE REASON FOR RETURN?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.1.6

REFERENCE: 2.3.2 3) b)/Q.714

TITLE: Messages from SCCP users, route not on GT.

SUBTITLE: Remote DPC and SSN included, DPC and/or SSN unavailable – Return option not set.

PURPOSE: To verify that data is not returned when routing not on GT and return option is not set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - DPC of SP B
   - SSN
   - no GT
2. Arrange return option in N-UNITDATA request not to be set
3. Arrange the SCCP routing control data as follows:
   - DPC of SP B unavailable and/or
   - SSN at SP B unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A	SP B
N-UNITDATA req. ==========>	

TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to SP B with a remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A.
4.	CHECK B: CONFIRM THAT DATA WAS NOT RETURNED TO SCCP USER.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.1.1

REFERENCE: 2.3.2 4) a) i)/Q.714

TITLE: Messages from SCCP users, route on GT.

SUBTITLE: GT translated to local DPC and SSN, and SSN available SSN and GT included.

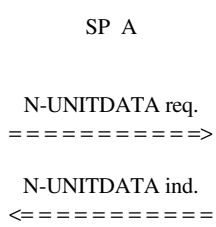
PURPOSE: To verify that the translation based on GT can be performed correctly to a local DPC and SSN and the user data can be delivered to the SCCP user at SP A.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - GT
   - no SSN
2. Arrange the SCCP routing control data as follows:
   - GT translated to
     - DPC of SP A
     - new or same SSN
   - SSN at SP A available

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to a SCCP user at SP A with a GT to be translated at SP A to a DPC and SSN of SP A.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE DATA CORRECTLY DELIVERED TO THE SCCP USER AT SP A?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.1.2

REFERENCE: 2.3.2 4) a) i)/Q.714

TITLE: Messages from SCCP users, route on GT.

SUBTITLE: GT translated to local DPC and SSN, and SSN available SSN not included, GT included.

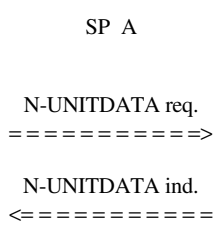
PURPOSE: To verify that the translation based on GT can be performed correctly to a local DPC and SSN and the user data can be delivered to the SCCP user at SP A.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - GT
   - no SSN
2. Arrange the SCCP routing control data as follows:
   - GT translated to
     - DPC of SP A
     - SSN
   - SSN at SP A available

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to a SCCP user at SP A with a GT to be translated at SP A to a DPC and SSN of SP A.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE DATA CORRECTLY DELIVERED TO THE SCCP USER AT SP A?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.2

REFERENCE: 2.3.2 4) a) i)/Q.714

TITLE: Messages from SCCP users, route on GT.

SUBTITLE: GT translated to local DPC and SSN, and SSN unavailable – Return option set.

PURPOSE: To verify that data is returned when routing on GT translates at SP A to a local DPC and an unavailable SSN and return option is set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   – GT
2. Arrange return option in N-UNITDATA request to be set
2. Arrange the SCCP routing control data as follows:
   – GT translated to
     – DPC of SP A
     – SSN
   – SSN at SP A unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	N-UNITDATA req. ==========>	
	<========== N-NOTICE ind.	

TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to a SCCP user at SP A with a GT to be translated at SP A to a DPC and SSN of SP A.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE SCCP USER ADVISED OF AN APPROPRIATE REASON FOR RETURN?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.3

REFERENCE: 2.3.2 4) a) i)/Q.714

TITLE: Messages from SCCP users, route on GT.

SUBTITLE: GT translated to local DPC and SSN, and SSN unavailable – Return option not set.

PURPOSE: To verify that data is returned when routing on GT translates at SP A to a local DPC and an unavailable SSN and return option is not set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   – GT
2. Arrange return option in N-UNITDATA request not to be set
3. Arrange the SCCP routing control data as follows:
   – GT translated to
     – DPC of SP A
     – SSN
   – SSN at SP A unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	N-UNITDATA req. ==========>	

TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to a SCCP user at SP A with a GT to be translated at SP A to a DPC and SSN of SP A.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: CONFIRM THAT DATA WAS NOT RETURNED TO SCCP USER.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.4.1

REFERENCE: 2.3.2 4) a) ii)/Q.714

TITLE: Messages from SCCP users, route on GT.

SUBTITLE: GT translated to remote DPC and SSN, and DPC and SSN available SSN and GT included.

PURPOSE: To verify that the translation based on GT can be performed correctly to remote DPC and SSN, and a SCCP UDT message can be generated correctly to SP B.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - GT
   - SSN
2. Arrange the SCCP routing control data as follows:
   - GT translated to
     - DPC of SP B
     - new or same SSN
     - routing on DPC-SSN
   - DPC of SP B available
   - SSN at SP B available

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Arrange SP A to request generating of a UDT message to SP B with a GT to be translated at SP A to a remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDT MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP B CONTAINED IN THE MTP ROUTING LABEL OF THE UDT MESSAGE AND WAS THE SIO CORRECT?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

TEST NUMBER: 1.1.1.2.4.1 (*continued*)

CHECK TABLE (1/1)

UDT (SP A → SP B)

1)	Protocol class:	00000000 (Class 0, Return option is not set) or 10000000 (Class 0, Return option is set) or 00000001 (Class 1, Return option is not set) or 10000001 (Class 1, Return option is set)

Called Party Address

2)	Point Code Indicator (Note):	0 (Signalling point code is not included) or 1 (Signalling point code is included)
3)	SSN Indicator:	1 (SSN is included)
4)	Global Title Indicator:	Don't care
5)	Routing Indicator:	1 (Routing on DPC)
6)	Signalling Point Code (Note):	DPC of SP B (if Point Code Indicator equals to 1)
7)	Sub-system Number:	SSN at SP B (result of GT translation)
8)	Global Title (Note):	"Appropriate information"

NOTE – Inclusion of GT and/or DPC in Called Party Address is implementation dependent for this test.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.4.2

REFERENCE: 2.3.2 4) a) ii)/Q.714

TITLE: Messages from SCCP users, route on GT.

SUBTITLE: GT translated to remote DPC and SSN, and DPC and SSN available SSN not included, GT included.

PURPOSE: To verify that the translation based on GT can be performed correctly to remote DPC and SSN, and a UDT message can be generated correctly to SP B.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - GT
   - SSN
2. Arrange the SCCP routing control data as follows:
   - GT translated to
     - DPC of SP B
     - SSN
     - routing on DPC-SSN
   - DPC of SP B available
   - SSN at SP B available

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Arrange SP A to request generating of a UDT message to SP B with a GT to be translated at SP A to a remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDT MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP B CONTAINED IN THE MTP ROUTING LABEL OF THE UDT MESSAGE AND WAS THE SIO CORRECT?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

TEST NUMBER: 1.1.1.2.4.2 (*continued*)

CHECK TABLE (1/1)

UDT (SP A → SP B)

1)	Protocol class:	00000000 (Class 0, Return option is not set) or 10000000 (Class 0, Return option is set) or 00000001 (Class 1, Return option is not set) or 10000001 (Class 1, Return option is set)

Called Party Address

2)	Point Code Indicator (Note):	0 (Signalling point code is not included) or 1 (Signalling point code is included)
3)	SSN Indicator:	1 (SSN is included)
4)	Global Title Indicator:	Don't care
5)	Routing Indicator:	1 (Routing on DPC)
6)	Signalling Point Code (Note):	DPC of SP B (if Point Code Indicator equals to 1)
7)	Sub-system Number:	SSN at SP B
8)	Global Title (Note):	"Appropriate information"

NOTE – Inclusion of GT and/or DPC in Called Party Address is implementation dependent for this test.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.5

REFERENCE: 2.3.2 4) a) iii)/Q.714

TITLE: Message from SCCP users, route on GT.

SUBTITLE: GT translated to remote DPC and SSN, and DPC and/or SSN unavailable – Return option set.

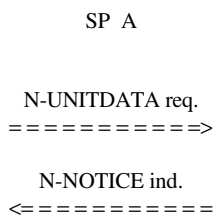
PURPOSE: To verify that data is returned when routing on GT translates at SP A to an unavailable remote DPC and/or SSN and return option is set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   – GT
2. Arrange return option in N-UNITDATA request to be set
3. Arrange the SCCP routing control data as follows:
   – GT translated to
     – DPC of SP B
     – SSN
     – routing on DPC-SSN
   – DPC of SP B unavailable and/or
   – SSN at SP B unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to SP B with a GT to be translated at SP A to a remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE SCCP USER ADVISED OF AN APPROPRIATE REASON FOR RETURN?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.6

REFERENCE: 2.3.2 4) a) iii)/Q.714

TITLE: Message from SCCP users, route on GT.

SUBTITLE: GT translated to remote DPC and SSN, and DPC and/or SSN unavailable – Return option not set.

PURPOSE: To verify that data is not returned when routing on GT translates at SP A to an unavailable remote DPC and/or SSN and return option is not set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   – GT
2. Arrange return option in N-UNITDATA request not to be set
3. Arrange the SCCP routing control data as follows:
   – GT translated to
     – DPC of SP B
     – SSN
     – routing on DPC-SSN
   – DPC of SP B unavailable and/or
   – SSN at SP B unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	N-UNITDATA req. ==========>	

TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data to SP B with a GT to be translated at SP A to a remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: CONFIRM THAT DATA WAS NOT RETURNED TO SCCP USER.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.7

REFERENCE: 2.3.2 4) b) i)/Q.714

TITLE: Message from SCCP users, route on GT.

SUBTITLE: GT translated to DPC and new or same GT, and DPC available.

PURPOSE: To verify that the translation based on GT can be performed correctly to remote DPC and new or same GT, and a UDT message can be generated correctly to SP B.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   - GT
2. Arrange the SCCP routing control data as follows:
   - GT translated to
     - new or same GT
     - DPC of SP B
     - routing on GT
   - DPC of SP B available

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Arrange SP A to request generating of a UDT message to SP B with a GT to be translated at SP A to remote DPC and new or same GT.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDT MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP B CONTAINED IN THE MTP ROUTING LABEL OF THE UDT MESSAGE AND WAS THE SIO CORRECT?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

TEST NUMBER: 1.1.1.2.7 (*continued*)

CHECK TABLE (1/1)

UDT (SP A → SP B)

1)	Protocol class:	00000000 (Class 0, Return option is not set) or 10000000 (Class 0, Return option is set) or 00000001 (Class 1, Return option is not set) or 10000001 (Class 1, Return option is set)

Called Party Address

2)	Point Code Indicator (Note):	0 (Signalling point code is not included) or 1 (Signalling point code is included)
3)	SSN Indicator:	0 (SSN is not included) or 1 (SSN is included)
4)	Global Title Indicator:	0001, 0010, 0011 or 0100 (Global Title included)
5)	Routing Indicator:	0 (Routing on GT)
6)	Signalling Point Code (Note):	DPC of SP B (if Point Code Indicator equals to 1)
7)	Sub-system Number:	XXXXXXXX (if SSN Indicator equals to 1)
8)	Global Title:	a Global Title Data (resulting from GT translation)

NOTE – Inclusion of DPC in Called Party Address is implementation dependent for this test.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.8

REFERENCE: 2.3.2 4) c)/Q.714

TITLE: Message from SCCP users, route on GT.

SUBTITLE: GT translation failed – Return option set.

PURPOSE: To verify that data is returned when GT translation failed and return option is set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   – GT
2. Arrange return option in N-UNITDATA request to be set
3. Arrange the SCCP routing control data as follows:
   – GT translated to
     – a GT
     – DPC of SP B
     – routing on GT
   – DPC of SP B unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	N-UNITDATA req. ==========>	
	N-NOTICE ind. <==========	

TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data with a GT.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE SCCP USER ADVISED OF AN APPROPRIATE REASON FOR RETURN?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.1.2.9

REFERENCE: 2.3.2 4) c)/Q.714

TITLE: Message from SCCP users, route on GT.

SUBTITLE: GT translation failed – Return option not set.

PURPOSE: To verify that data is not returned when GT translation failed and return option is not set.

PRE-TEST CONDITIONS:

1. Arrange the called address in N-UNITDATA request to contain:
   – GT
2. Arrange return option in N-UNITDATA request not to be set
3. Arrange the SCCP routing control data as follows:
   – GT translated to
     – a GT
     – DPC of SP B
     – routing on GT
   – DPC of SP B unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
N-UNITDATA req.	==========>	

TEST DESCRIPTION

1.	Arrange SP A to request delivery of user data with a GT.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
4.	CHECK B: CONFIRM THAT DATA WAS NOT RETURNED TO SCCP USER.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.1.1

REFERENCE: 2.3.1 3) a) i)/Q.714

TITLE: Messages from MTP, route on GT.

SUBTITLE: GT translated to local DPC and SSN, and SSN available.

PURPOSE: To verify that the translation based on GT can be performed correctly to a local DPC and SSN and the user data can be delivered to the SCCP user at SP A.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translated to
     - DPC of SP A
     - new or same SSN
   - SSN at SP A available

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	<– – – – – – – – – – –	UDT
N-UNITDATA ind. <= = = = = = = = = = =		

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a GT to be translated at SP A to a DPC and SSN of SP A.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE DATA CORRECTLY DELIVERED TO THE SCCP USER AT SP A?
4.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.1.2

REFERENCE: 2.3.1 3) a) i)/Q.714

TITLE: Messages from MTP, route on GT.

SUBTITLE: GT translated to local DPC and SSN, and SSN unavailable – Return option set.

PURPOSE: To verify that the data is returned when routing on GT translates to a local DPC and an unavailable SSN, and return option is set.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
   - Return option set
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translated to
     - DPC of SP A
     - new or same SSN
   - SSN at SP A unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a GT to be translated at SP A to a DPC and SSN of SP A.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDTS MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP B CONTAINED IN THE MTP ROUTING LABEL OF THE UDTS MESSAGE?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

CHECK TABLE

UDTS (SP A → SP B)

1)	Return cause:	"Appropriate value"
2)	Called party address:	Derived from the calling party address in the UDT message
3)	Calling party address:	"Appropriate information of SP A"
4)	Data:	Same data as in the UDT message

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.1.3

REFERENCE: 2.3.1 3) a) i)/Q.714

TITLE: Message from MTP, route on GT.

SUBTITLE: GT translated to local DPC and SSN, and SSN unavailable – Return option not set.

PURPOSE: To verify that the data is not returned when routing on GT translates to a local DPC and an unavailable SSN and return option is not set.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
   - Return option not set
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translated to
     - DPC of SP A
     - new or same SSN
   - SSN at SP A unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	<– – – – – – – – – – – –	UDT

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a GT to be translated at SP A to a DPC of SP A and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES EXCEPT THOSE FOR MANAGEMENT WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.1.4

REFERENCE: 2.3.1 3) a) ii)/Q.714

TITLE: Message from MTP, route on GT.

SUBTITLE: GT translated to remote DPC and SSN, and DPC and SSN available.

PURPOSE: To verify that the translation based on GT can be performed correctly to a remote DPC and SSN, and a UDT message can be generated correctly to SP C.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translated to
     - DPC of SP C
     - new or same SSN
     - route on DPC-SSN
   - DPC of SP C available
   - SSN at SP C available

CONFIGURATION: 2	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP B	SP A	SP C
UDT ––––––––––>		
	UDT ––––––––––>	

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a GT to be translated at SP A to remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDT MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP C CONTAINED IN THE MTP ROUTING LABEL OF THE UDT MESSAGE GENERATED BY SP A AND WAS THE SIO CORRECT?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

TEST NUMBER: 1.1.2.1.4 (*continued*)

CHECK TABLE (1/1)

UDT (SP A → SP C)

1)	Protocol class:	00000000 (Class 0, Return option is not set) or 10000000 (Class 0, Return option is set) or 00000001 (Class 1, Return option is not set) or 10000001 (Class 1, Return option is set)

Called Party Address

2)	Point Code Indicator (Note):	0 (Signalling point code is not included) or 1 (Signalling point code is included)
3)	SSN Indicator:	1 (SSN is included)
4)	Global Title Indicator:	Don't care
5)	Routing Indicator:	1 (Routing on DPC)
6)	Signalling Point Code (Note):	DPC of SP C (if Point Code Indicator equals to 1)
7)	Sub-system Number:	SSN at SP C
8)	Global Title (Note):	"Appropriate information"

NOTE – Inclusion of GT and/or DPC in Called Party Address is implementation dependent for this test.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.1.5

REFERENCE: 2.3.1 3) a) iv)/Q.714

TITLE: Message from MTP, route on GT.

SUBTITLE: GT translated to remote DPC and SSN, and DPC and/or SSN unavailable – Return option set.

PURPOSE: To verify that the data is returned when routing on GT translates to an unavailable remote DPC and/or SSN and return option is set.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
   - return option set
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translated to
     - DPC of SP C
     - new or same SSN
     - route on DPC-SSN
   - DPC of SP C unavailable and/or SSN at SP C unavailable

CONFIGURATION: 2	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP B	SP A	SP C
UDT – – – – – – – – – – – –>		
	<– – – – – – – – – – – – UDTS	

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a GT to be translated at SP A to remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDTS MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP B CONTAINED IN THE MTP ROUTING LABEL OF THE UDTS MESSAGE?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

CHECK TABLE (1/1)

UDTS (SP A → SP B)

1)	Return cause:	"Appropriate value"
2)	Called party address:	Derived from the calling party address in the UDT message
3)	Calling party address:	"Appropriate information of SP A"
4)	Data:	Same data as in the UDT message

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.1.6

REFERENCE: 2.3.1 3) a) iv)/Q.714

TITLE: Message from MTP, route on GT.

SUBTITLE: GT translated to remote DPC and SSN, and DPC and/or SSN unavailable – Return option not set.

PURPOSE: To verify that the data is not returned when routing on GT translates to an unavailable remote DPC and/or SSN and return option is not set.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
   - return option not set
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translated to
     - DPC of SP C
     - new or same SSN
     - route on DPC-SSN
   - DPC of SP C unavailable and/or SSN at SP C unavailable

CONFIGURATION: 2	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP B	SP A	SP C
UDT ––––––––––>		

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a GT to be translated at SP A to remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES EXCEPT THOSE FOR MANAGEMENT WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.1.7

REFERENCE: 2.3.1 3) b) i)/Q.714

TITLE: Message from MTP, route on GT.

SUBTITLE: GT translated to remote DPC and new or same GT, and DPC available.

PURPOSE: To verify that the translation based on GT can be performed correctly to remote DPC and new or same GT, and a UDT message can be generated correctly to SP C.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translated to
     - DPC of SP C
     - new or same GT
     - route on GT
   - DPC of SP C available

CONFIGURATION: 2	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP B	SP A	SP C
UDT – – – – – – – – – – – –>		
	UDT – – – – – – – – – – – –>	

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a GT to be translated at SP A to remote DPC and new or same GT.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDT MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP C CONTAINED IN THE MTP ROUTING LABEL OF THE UDT MESSAGE GENERATED BY SP A AND WAS THE SIO CORRECT?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

TEST NUMBER: 1.1.2.1.7 (*continued*)

CHECK TABLE (1/1)

UDT (SP A → SP C)

1)	Protocol class:	00000000 (Class 0, Return option is not set) or 10000000 (Class 0, Return option is set) or 00000001 (Class 1, Return option is not set) or 10000001 (Class 1, Return option is set)

Called Party Address

2)	Point Code Indicator (Note):	0 (Signalling point code is not included) or 1 (Signalling point code is included)
3)	SSN Indicator:	0 (SSN is not included) or 1 (SSN is included)
4)	Global Title Indicator:	0001, 0010, 0011 or 0100 (Global Title is included)
5)	Routing Indicator:	0 (Routing on GT)
6)	Signalling Point Code (Note):	DPC of SP C (if Point Code Indicator equals to 1)
7)	Sub-system Number:	XXXXXXXX (if SSN Indicator equals to 1)
8)	Global Title:	a Global Title data (resulting from GT translation))

NOTE – Inclusion of DPC in Called Party Address is implementation dependent for this test.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.1.8

REFERENCE: 2.3.1 3) c)/Q.714

TITLE: Message from MTP, route on GT.

SUBTITLE: GT translation failed – Return option set.

PURPOSE: To verify that data is returned when GT translation failed and return option is set.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
   - return option set
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translation not existing

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a GT.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDTS MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP B CONTAINED IN THE MTP ROUTING LABEL OF THE UDTS MESSAGE?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

CHECK TABLE

UDTS (SP A → SP B)

1)	Return cause:	"Appropriate value"
2)	Called party address:	Derived from the calling party address in the UDT message
3)	Calling party address:	"Appropriate information of SP A"
4)	Data:	Same data as in the UDT message

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.1.9

REFERENCE: 2.3.1 3) c)/Q.714

TITLE: Message from MTP, route on GT.

SUBTITLE: GT translation failed – Return option not set.

PURPOSE: To verify that data is not returned when GT translation failed and return option is not set.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
   - return option not set
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translation not existing

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	<– – – – – – – – – – –	UDT

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a GT.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES EXCEPT THOSE FOR MANAGEMENT WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.2.1.1

REFERENCE: 2.3.1 2) a)/Q.714

TITLE: Message from MTP, route not on GT.

SUBTITLE: Local DPC and SSN, and SSN available GT and SSN included.

PURPOSE: To verify that the user data can be delivered to the correct SCCP user at SP A when routing not on GT.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - SSN
     - GT
     - route on DPC-SSN
2. Arrange the SCCP routing control data at SP A as follows:
   - SSN at SP A available

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	<– – – – – – – – – – –	UDT
N-UNITDATA ind. <= = = = = = = = = = =		

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE DATA CORRECTLY DELIVERED TO THE SCCP USER AT SP A?
4.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.2.1.2

REFERENCE: 2.3.1 2) a)/Q.714

TITLE: Message from MTP, route not on GT.

SUBTITLE: Local DPC and SSN, and SSN available GT not included, SSN included.

PURPOSE: To verify that the user data can be delivered to the correct SCCP user at SP A when routing not on GT.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - SSN
     - no GT
     - route on DPC-SSN
2. Arrange the SCCP routing control data at SP A as follows:
   - SSN at SP A available

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	<– – – – – – – – – – –	UDT
N-UNITDATA ind. <= = = = = = = = = = =		

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE DATA CORRECTLY DELIVERED TO THE SCCP USER AT SP A?
4.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.2.2

REFERENCE: 2.3.1 3) b)/Q.714

TITLE: Message from MTP, route not on GT.

SUBTITLE: Local DPC and SSN, and SSN unavailable – Return option set.

PURPOSE: To verify that the data is returned when routing is not based on GT and return option is set.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - SSN
     - route on DPC-SSN
   - return option set
2. Arrange the SCCP routing control data at SP A as follows:
   - SSN at SP A unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with an SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDTS MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP B CONTAINED IN THE MTP ROUTING LABEL OF THE UDTS MESSAGE?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

CHECK TABLE

UDTS (SP A → SP B)

1)	Return cause:	"Appropriate value"
2)	Called party address:	Derived from the calling party address in the UDT message
3)	Calling party address:	"Appropriate information of SP A"
4)	Data:	Same data as in the UDT message

SCCP TEST SPECIFICATION

TEST NUMBER: 1.1.2.2.3

REFERENCE: 2.3.1 2) b)/Q.714

TITLE: Message from MTP, route not on GT.

SUBTITLE: Local DPC and SSN, and SSN unavailable – Return option not set.

PURPOSE: To verify that the data is not returned when routing is not based on GT and return option is not set.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - SCCP address information:
     - SSN
     - route on DPC-SSN
   - return option not set
2. Arrange the SCCP routing control data at SP A as follows:
   - SSN at SP A unavailable

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	<– – – – – – – – – – – –	UDT

TEST DESCRIPTION

1.	Arrange SP B to send a UDT message to SP A with a SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT NO MESSAGES EXCEPT THOSE FOR MANAGEMENT WERE SENT BY SP A TO SP B.
4.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.2.1.1

REFERENCE: 4/Q.714

TITLE: Data Transfer.

SUBTITLE: Data Transfer with Sequential Delivery Capability at originating node.

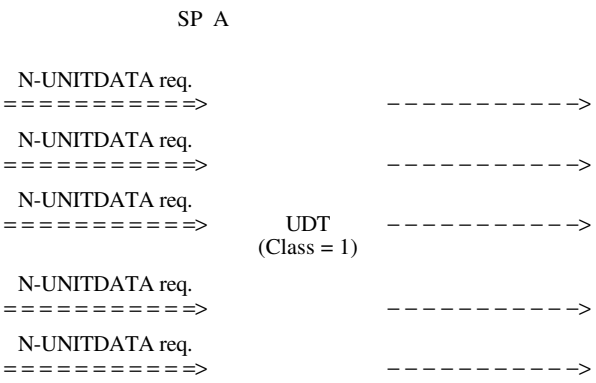
PURPOSE: To verify that SP A uses the same signalling link for all messages using class 1 protocol.

PRE-TEST CONDITIONS:

1. Arrange the generation of a number of N-UNITDATA request with:
   - address information identifying SP B:
     - sequence control set
2. Arrange the SCCP routing control data as follows:
   - SP B available
   - SSN at SP B available

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Arrange SP A to send five UDT messages using class 1 protocol.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WERE THE UDT MESSAGES CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP B CONTAINED IN THE MTP ROUTING LABEL OF THE UDT MESSAGES AND WAS THE SIO CORRECT?
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?
6.	CHECK D: WERE ALL THE UDT MESSAGES SENT WITH THE SAME SLS CODE CONTAINED IN THE MTP ROUTING LABEL SENT IN THE CORRECT ORDER?

TEST NUMBER: 1.2.1.1 (*continued*)

CHECK TABLE (1/1)

UDT (SP A → SP B)

1)	Protocol class:	00000001 (Class 1, Return option is not set) or 10000001 (Class 1, Return option is set)

Called Party Address

2)	Point Code Indicator (Note):	0 (Signalling point code is not included) or 1 (Signalling point code is included)
3)	SSN Indicator:	Don't care
4)	Global Title Indicator:	Don't care
5)	Routing Indicator:	Don't care
6)	Signalling Point Code (Note):	DPC of SP C (if Point Code Indicator equals to 1)
7)	Sub-system Number:	Don't care
8)	Global Title (Note):	"Appropriate information"

NOTE – Inclusion of GT and/or DPC in Called Party Address is implementation dependent for this test.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.2.1.2

REFERENCE: 4/Q.714

TITLE: Data Transfer.

SUBTITLE: Data Transfer with Sequential Delivery Capability at relay node.

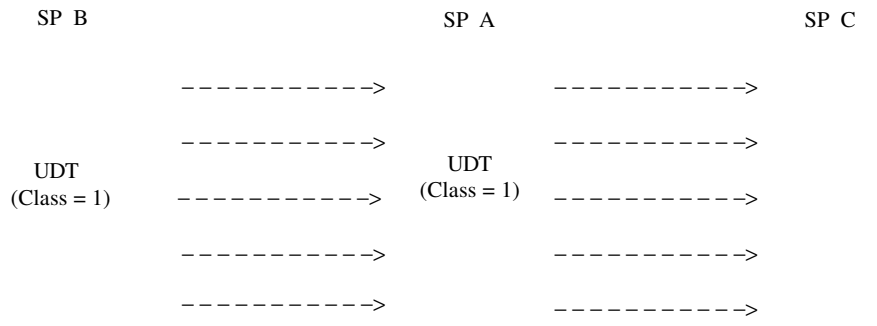
PURPOSE: To verify that SP A uses the same signalling link for all messages using class 1 protocol.

PRE-TEST CONDITIONS:

1. Arrange the generation of a number of SCCP messages with:
   - address information (GT) identifying SP C:
     - sequence control set
     - GT translation necessary in SP A
2. Arrange the SCCP routing control data as follows:
   - SP C available
   - SSN at SP C available

CONFIGURATION: 1	TYPE OF TEST: VAT & CPT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Arrange SP B to send five UDT messages using class 1 protocol, using SP A as relay point.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WERE THE UDT MESSAGES CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP C CONTAINED IN THE MTP ROUTING LABEL OF THE UDT MESSAGES AND WAS THE SIO CORRECT?
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?
6.	CHECK D: WERE ALL THE UDT MESSAGES SENT WITH THE SAME SLS CODE CONTAINED IN THE MTP ROUTING LABEL AND WAS THE ORDER IN WHICH THE MESSAGES WERE SENT THE SAME ORDER IN WHICH THEY WERE RECEIVED?

TEST NUMBER: 1.2.1.2 (*continued*)

CHECK TABLE (1/1)

UDT (SP A → SP C)

1)	Protocol class:	00000001 (Class 1, Return option is not set) or 10000001 (Class 1, Return option is set)

Called Party Address

2)	Point Code Indicator (Note):	0 (Signalling point code is not included) or 1 (Signalling point code is included)
3)	SSN Indicator:	Don't care
4)	Global Title Indicator:	Don't care
5)	Routing Indicator:	Don't care
6)	Signalling Point Code (Note):	DPC of SP C (if Point Code Indicator equals to 1)
7)	Sub-system Number:	Don't care
8)	Global Title (Note):	"Appropriate information"

NOTE – Inclusion of GT and/or DPC in Called Party Address is implementation dependent for this test.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.2.2

REFERENCE: 4.3/Q.714

TITLE: Data Transfer.

SUBTITLE: Data Transfer with Sintax Error.

PURPOSE: To verify that a UDT message received with sintax error at SP A is discarded.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDT message from SP B to SP A with:
   - Syntax error
   - return option set

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	<– – – – – – – – – – –	UDT

TEST DESCRIPTION

1.	Arrange SP B to generate a UDT message with a syntax error.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE UDT MESSAGE DISCARDED AT SP A?
4.	CHECK B: CONFIRM THAT NO MESSAGES WERE SENT BY SP A TO SP B.
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.2.3.1.1

REFERENCE: 4.2/Q.714

TITLE: Data Transfer.

SUBTITLE: UDTS deliverable to SCCP user.

PURPOSE: To verify that a UDTS message received at SP A can be delivered correctly to an SCCP user.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDTS message from SP B to SP A
2. Arrange the SCCP routing control data as follows:
   – SSN at SP A available

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Arrange SP B to generate a UDTS message to available subsystem at SP A.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS THE SCCP USER ADVISED OF AN APPROPRIATE REASON FOR RETURN?
4.	CHECK B: CONFIRM THAT NO MESSAGES EXCEPT THOSE FOR MANAGEMENT WERE SENT BY SP A TO SP B.
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?

SCCP TEST SPECIFICATION

TEST NUMBER: 1.2.3.1.2

REFERENCE: 4.2/Q.714

TITLE: Data Transfer.

SUBTITLE: UDTS deliverable to other SP.

PURPOSE: To verify that a UDTS message received at SP A can be sent correctly if the SCCP is able to send the message.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDTS message from SP B to SP A with:
   - SCCP address information:
     - GT
     - route on GT
2. Arrange the SCCP routing control data at SP A as follows:
   - GT translated to DPC of SP C
   - destination accessible

CONFIGURATION: 2	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP C		SP A		SP B
	<– – – – – – – – – – –	UDTS	<– – – – – – – – – – –	UDTS

TEST DESCRIPTION

1.	Arrange SP B to generate a UDTS message to SP A with a GT to be translated at SP A to remote DPC and SSN.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: WAS UDTS MESSAGE CORRECTLY GENERATED BY SP A?
4.	CHECK B: WAS THE POINT CODE OF SP C CONTAINED IN THE MTP ROUTING LABEL OF THE UDTS MESSAGE GENERATED BY SP A?
5.	CHECK C: WERE THE PARAMETER FIELDS SET CORRECTLY AS INDICATED IN THE CHECK TABLE BELOW?
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?

TEST NUMBER: 1.2.3.1.2 (*continued*)

CHECK TABLE (1/1)

UDTS (SP A → SP C)		
1)	Return cause:	"Appropriate value"
Called Party Address		
2)	Point Code Indicator (Note):	0 (Signalling point code is not included) or 1 (Signalling point code is included)
3)	SSN Indicator:	0 (SSN is not included) or 1 (SSN is included)
4)	Global Title Indicator:	Don't care
5)	Routing Indicator:	Don't care
6)	Signalling Point Code (Note):	DPC of SP C (if Point Code Indicator equals to 1)
7)	Sub-system Number:	XXXXXXXX (if SSN Indicator equals to 1)
8)	Global Title (Note):	"Appropriate information"
Calling party address		"Appropriate information"
Data:		"Appropriate information"

NOTE – Inclusion of GT and/or DPC in Called Party Address is implementation dependent for this test.

SCCP TEST SPECIFICATION

TEST NUMBER: 1.2.3.2.1

REFERENCE: 4.2/Q.714

TITLE: Data Transfer.

SUBTITLE: UDTS undeliverable to SCCP user.

PURPOSE: To verify that a UDTS message to unavailable SCCP user received at SP A is discarded.

PRE-TEST CONDITIONS:

1. Arrange the generation of a UDTS message from SP B to SP A
2. Arrange the SCCP routing control data as follows:
   – SSN at SP A not available

CONFIGURATION: 1	TYPE OF TEST: VAT	TYPE OF SP: SP

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
	<– – – – – – – – – – –	UDTS

TEST DESCRIPTION

1.	Arrange SP A and SP B to generate a UDTS message to an unavailable sub-system at SP A.
2.	Record the message sequence and parameters using a signal monitor.
3.	CHECK A: CONFIRM THAT DATA WAS NOT DELIVERED TO SCCP USER.
4.	CHECK B: CONFIRM THAT NO MESSAGES EXCEPT THOSE FOR MANAGEMENT WERE SENT BY SP A TO SP B.
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?