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Digitalno omrežje z integriranimi storitvami (ISDN) - Signalizacija št. 7 - Krmilni del signalizacijske zveze (SCCP) - Preskušalna specifikacija medsebojne obratovnosti

Integrated Services Digital Network (ISDN); Signalling System No.7; Signalling Connection Control Part (SCCP); Interoperability test specification

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European Standard (Telecommunications series)

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Foreword

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

National transposition dates	
Date of adoption of this EN:	3 April 1998
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1 Scope

The present document specifies interoperability testing between nodes meeting the requirements of ITU-T Recommendations Q.711 to Q.714 [2] as modified by ETS 300 009-1 [1]. The present document may optionally also be applied within national networks and implementations of earlier versions of ETS 300 009 and the ITU-T Recommendations.

The present document is not meant to restrict national networks. The tests in the present document form a basic set of interoperability tests, and are used in gaining confidence that implementations of the Signalling Connection Control Part (SCCP) can interwork.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, subsequent revisions do apply.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

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2.1 Normative references

- [1] ETS 300 009-1 (1996): "Integrated Services Digital Network (ISDN); Signalling System No.7; Signalling Connection Control Part (SCCP) (connectionless and connection-oriented class 2) to support international interconnection; Part 1: Protocol specification [ITU-T Recommendations Q.711 to Q.714 and Q.716 (1993), modified]".
- [2] ITU-T Recommendations Q.711 to Q.714 (1993): "Signalling Connection Control Part (SCCP)".

2.2 Informative references

- [3] ITU-T Recommendation Q.786 (1993): "SCCP Test Specification".

3 Abbreviations

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

DPC	Destination Point Code
DT1	Data Form 1 message
GT	Global Title
GTAI	Global Title Address Information
MTP	Message Transfer Part
NI	Network Indicator
OPC	Origination Point Code
PC	Point Code
SCCP	Signalling Connection Control Part
SIO	Service Information Octet
SP	Signalling Point
SSA	SubSystem Allowed message
SSN	SubSystem Number
SST	Subsystem Status Test message
UDT	UnitData message
UDTS	UnitData Service message
UPU	User Part Unavailable
XUDT	Extended Unitdata message
XUDTS	Extended UnitData Service message

4 SCCP test specification

Conformance and performance tests are not included in the present document.

4.1 Introduction

The function of interoperability testing is to confirm that different implementations, each of which conforms to ETS 300 009-1 [1], can interwork. These interoperability tests apply in the international network but may also be applied in national networks. Successful conformance or validation testing of SCCP itself, SCCP applications and Message Transfer Part (MTP) is a pre-requisite of interoperability testing. It is recommended that interoperability testing is performed on signalling nodes that are not in service.

Interoperability testing may require the use of a monitor to check the operation of the signalling node(s) under test. The specification of this monitor is not covered by the present document although the general requirements are that the equipment is capable of capturing all data on the signalling link, and preferably be able to decode the information captured into SCCP messages.

The tests in the present document are only a basic set in gaining confidence in the interoperability of SCCP implementations. Specific interconnections may require more interoperability testing than specified here. The specific range of tests performed between nodes is subject to bilateral or multilateral agreement and also dependent on the functionality of the implementations under test. The tests are shown in one direction of testing, thus they should be repeated in the reverse direction for completeness.

4.2 Network and implementation dependency considerations

SCCP applications may be external to the nodes under test (e.g. external testers).

Where the receiving node is a stand alone SCCP relay Sub System Number (SSN) routing to it cannot be used. In this case tests using SSN routing are not applicable.

In some implementations SCCP and MTP availability are inseparable (e.g. in the case where MTP and SCCP are handled together). In such cases tests that require the availability status of SCCP and MTP to be different cannot be run.

If the nodes under test are in service it is inadvisable to run tests that require the MTP or SCCP to be unavailable.

4.3 Test network configuration

The following network configuration is intended to show a typical international SCCP network scenario and is the basis of all the tests in the present document. In practice, in some cases, node B (i.e. a "stand alone" SCCP relay node) may not exist. In these cases the relay functionality part of the tests may still be applied but would relate to international gateway nodes A and C.

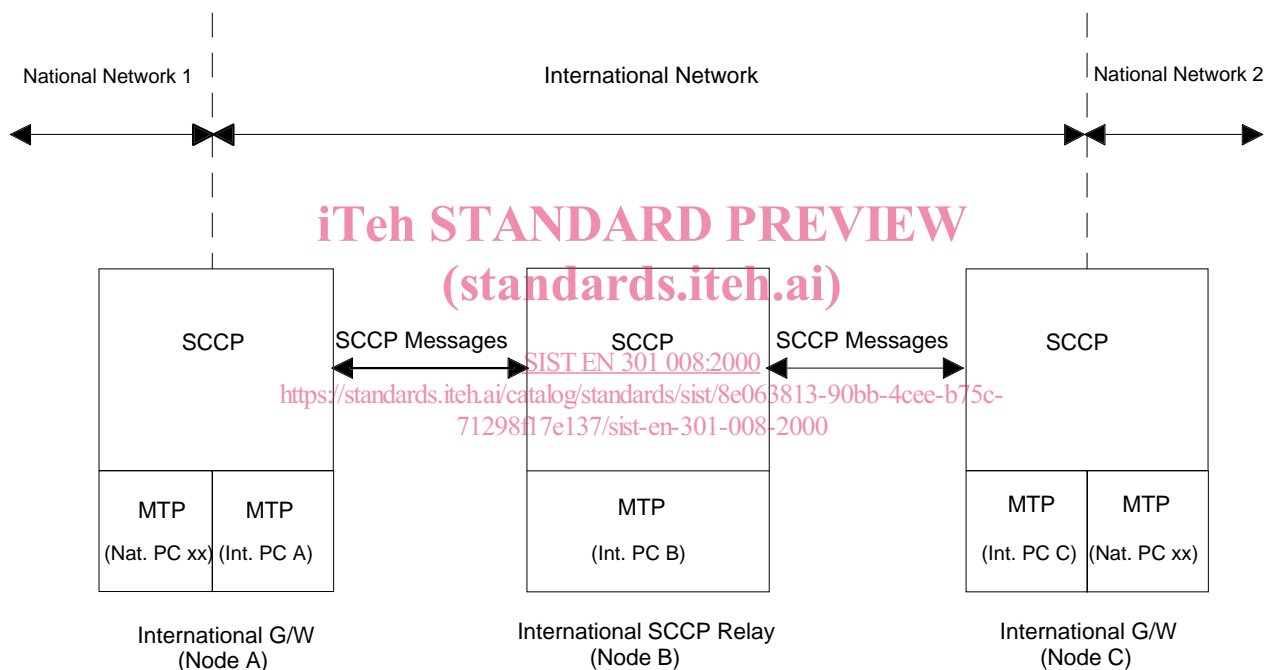


Figure 1

4.4 Reference specification

The SCCP is described in the ETS 300 009-1 [1].

4.5 Test list

NOTE: A number of the tests given in the present document make reference to UnitData (Service) message (UDT(S)) messages. Where supported by all the nodes in the test, Extended UnitData (Service) message (XUDT(S)) messages may be employed as an alternative.

4.5.1 GT routing tests

Test Number 1

To verify correct Global Title (GT) translation and a correctly functioning signalling route exists between nodes under test. The primary purpose of this test is to give confidence that a signalling relationship exists between the nodes under test. Specific signalling functionality is tested by the other tests.

Test Number 2

To verify correct GT translation, message return and SCCP management functionality following temporary SCCP unavailability.

Test Number 3

To verify that UDTS is not returned when GT translates to an inaccessible Destination Point Code (DPC) and/or unavailable SSN/SCCP and the return on error option is not set.

Test Number 4

To verify that UDTS is returned when the GT translates to an inaccessible DPC and/or unavailable SSN/SCCP and the return on error option is set.

Test Number 5

To verify that UDTS is returned when the GT is of a type that cannot be translated and the return on error option is set.

Test Number 6

To verify that UDTS is returned when unknown GT Address digits are received and the return on error option is set.

4.5.2 Connectionless protocol class tests

Test Number 7

To verify that segmented messages are correctly transferred.

4.6 Test tables

Test Number	1
Reference	ITU-T Recommendation Q.714 [2], clause 2, as modified by ETS 300 009-1 [1]
Title	GT translation
Subtitle	Correct operation of signalling route
Purpose	To verify correct Global Title translation and a correctly functioning signalling route exists between nodes under test
Pre-test Conditions:	
<ol style="list-style-type: none"> Arrange the generation of a UDT message from Node A to Node B with: <ul style="list-style-type: none"> - SCCP address information: <ul style="list-style-type: none"> - GT; - route on GT. Arrange the SCCP routing control data at Node B as follows: <ul style="list-style-type: none"> - GT translated to DPC of Node C. At node B, DPC and SCCP of Node C and, if applicable (i.e. RI Node B→C = SSN routing), Subsystem all available. 	
Expected Message Sequence	
<p style="text-align: center;"> NODE A NODE B NODE C UDT → UDT → (continued) </p>	