



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.788

(06/97)

SERIES Q: SWITCHING AND SIGNALLING

Specifications of Signalling System No. 7 – Test
specification

**User-network-interface to user-network-
interface compatibility test specifications for
ISDN, non-ISDN and undetermined accesses
interworking over international ISUP**

ITU-T Recommendation Q.788

(Previously CCITT Recommendation)

ITU-T Q-SERIES RECOMMENDATIONS
SWITCHING AND SIGNALLING

SIGNALLING IN THE INTERNATIONAL MANUAL SERVICE	Q.1–Q.3
INTERNATIONAL AUTOMATIC AND SEMI-AUTOMATIC WORKING	Q.4–Q.59
FUNCTIONS AND INFORMATION FLOWS FOR SERVICES IN THE ISDN	Q.60–Q.99
CLAUSES APPLICABLE TO ITU-T STANDARD SYSTEMS	Q.100–Q.119
SPECIFICATIONS OF SIGNALLING SYSTEMS No. 4 AND No. 5	Q.120–Q.249
SPECIFICATIONS OF SIGNALLING SYSTEM No. 6	Q.250–Q.309
SPECIFICATIONS OF SIGNALLING SYSTEM R1	Q.310–Q.399
SPECIFICATIONS OF SIGNALLING SYSTEM R2	Q.400–Q.499
DIGITAL EXCHANGES	Q.500–Q.599
INTERWORKING OF SIGNALLING SYSTEMS	Q.600–Q.699
SPECIFICATIONS OF SIGNALLING SYSTEM No. 7	Q.700–Q.849
General	Q.700
Message transfer part (MTP)	Q.701–Q.709
Signalling connection control part (SCCP)	Q.711–Q.719
Telephone user part (TUP)	Q.720–Q.729
ISDN supplementary services	Q.730–Q.739
Data user part	Q.740–Q.749
Signalling System No. 7 management	Q.750–Q.759
ISDN user part	Q.760–Q.769
Transaction capabilities application part	Q.770–Q.779
Test specification	Q.780–Q.799
Q3 interface	Q.800–Q.849
DIGITAL SUBSCRIBER SIGNALLING SYSTEM No. 1	Q.850–Q.999
General	Q.850–Q.919
Data link layer	Q.920–Q.929
Network layer	Q.930–Q.939
User-network management	Q.940–Q.949
Stage 3 description for supplementary services using DSS 1	Q.950–Q.999
PUBLIC LAND MOBILE NETWORK	Q.1000–Q.1099
INTERWORKING WITH SATELLITE MOBILE SYSTEMS	Q.1100–Q.1199
INTELLIGENT NETWORK	Q.1200–Q.1999
BROADBAND ISDN	Q.2000–Q.2999

For further details, please refer to ITU-T List of Recommendations.

ITU-T RECOMMENDATION Q.788

USER-NETWORK-INTERFACE TO USER-NETWORK-INTERFACE COMPATIBILITY TEST SPECIFICATIONS FOR ISDN, NON-ISDN AND UNDETERMINED ACCESSES INTERWORKING OVER INTERNATIONAL ISUP

Summary

This Recommendation contains the User-Network Interface (UNI) to UNI testing principles and test specifications for interworking ISDN, non-ISDN and undetermined accesses over international ISUP (ISUP'92 or Q.767).

It is intended for tests with ISUP'92, but it is also applicable for combinations between ISUP'92 and ISUP Q.767. For the test scripts, an informal description method is used.

Source

ITU-T Recommendation Q.788 was revised by ITU-T Study Group 11 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 5th of June 1997.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. 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, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

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

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, the ITU had/had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

© ITU 1998

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the ITU.

CONTENTS

		Page
1	Scope	1
2	References	1
3	Terminology	4
3.1	Definitions	4
3.2	Abbreviations	4
4	Objective of the test specification	6
5	Scope of UNI-to-UNI compatibility testing	7
6	General principles of UNI-to-UNI tests	8
6.1	General pre-test conditions.....	8
7	Test environments	9
8	UNI-to-UNI Compatibility Test List.....	12

Recommendation Q.788

USER-NETWORK-INTERFACE TO USER-NETWORK-INTERFACE COMPATIBILITY TEST SPECIFICATIONS FOR ISDN, NON-ISDN AND UNDETERMINED ACCESSES INTERWORKING OVER INTERNATIONAL ISUP

(revised in 1997)

1 Scope

This Recommendation contains User-Network-Interface (UNI) to User-Network-Interface test specifications required to verify the overall compatibility of ISDN, non-ISDN and undetermined accesses interworking over international ISUP between networks.

UNI-to-UNI testing will assure that for each bit and octet of feature request that passes between an ISDN subscriber and the local exchange equivalent, information must be passed across the international ISUP (ISUP'92 or Q.767) interface. Therefore, the compatibility testing boundaries are extended beyond the existing ISC's international ISUP interfaces as currently specified in Recommendations Q.784 and Q.785. Furthermore, those Recommendations do not cover the interworking between ISDN, non-ISDN and undetermined access signalling. As international ISUP is implemented, testing to ensure the integrity of undetermined access and other embedded capabilities is also required.

The test specifications in this Recommendation do not attempt to verify the interoperability of Terminal Equipment (TE) or to replace end-to-end service testing.

It is assumed that DSS 1 and ISUP customer acceptance, and protocol validation testing (Q.784 for ISUP) of each network have been successfully completed. ISC-to-ISC circuit supervision testing per Recommendation Q.784 is also a prerequisite to these UNI-to-UNI compatibility tests.

A given test specification from this Recommendation is only applicable when the networks can provide the information requested by the tests. Otherwise the test is limited to verifying the proper call disposition.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the current valid ITU-T Recommendations is regularly published.

- [1] ITU-T Recommendation Q.118 (1993), *Special release arrangements*.
- [2] CCITT Recommendation Q.699 (1988), *Interworking between the digital Subscriber Signalling System layer 3 protocol and the Signalling System No. 7 ISDN User Part*.
- [3] ITU-T Recommendation Q.730 (1993), *ISDN supplementary services*.

- [4] ITU-T Recommendation Q.731.3 (1993), *Stage 3 description for number identification supplementary services using Signalling System No. 7: Calling Line Identification Presentation (CLIP)*.
- [5] ITU-T Recommendation Q.731.4 (1993), *Stage 3 description for number identification supplementary services using Signalling System No. 7: Calling Line Identification Restriction (CLIR)*.
- [6] ITU-T Recommendation Q.731.5 (1993), *Stage 3 description for number identification supplementary services using Signalling System No. 7: Connected Line Identification Presentation (COLP)*.
- [7] ITU-T Recommendation Q.731.6 (1993), *Stage 3 description for number identification supplementary services using Signalling System No. 7: Connected Line Identification Restriction (COLR)*.
- [8] ITU-T Recommendation Q.731.7 (1997), *Stage 3 description for number identification supplementary services using Signalling System No. 7: Malicious Call Identification (MCID)*.
- [9] CCITT Recommendation Q.731.8 (1992), *Stage 3 description for number identification supplementary services using Signalling System No. 7: Sub-addressing*.
- [10] ITU-T Recommendation Q.732.2 (1993), *Stage 3 description for call offering supplementary services using Signalling System No. 7: Call forwarding busy*.
- [11] ITU-T Recommendation Q.732.3 (1993), *Stage 3 description for call offering supplementary services using Signalling System No. 7: Call forwarding no reply*.
- [12] ITU-T Recommendation Q.732.4 (1993), *Stage 3 description for call offering supplementary services using Signalling System No. 7: Call forwarding unconditional*.
- [13] ITU-T Recommendation Q.732.5 (1993), *Stage 3 description for call offering supplementary services using Signalling System No. 7: Call deflection*.
- [14] CCITT Recommendation Q.733.1 (1992), *Stage 3 description for call completion supplementary services using Signalling System No. 7: Call Waiting (CW)*.
- [15] ITU-T Recommendation Q.733.2 (1993), *Stage 3 description for call completion supplementary services using Signalling System No. 7: Call Hold (HOLD)*.
- [16] ITU-T Recommendation Q.733.4 (1993), *Stage 3 description for call completion supplementary services using Signalling System No. 7: Terminal Portability (TP)*.
- [17] ITU-T Recommendation Q.734.1 (1993), *Stage 3 description for multiparty supplementary services using Signalling System No. 7: Conference calling*.
- [18] ITU-T Recommendation Q.734.2 (1993), *Stage 3 description for multiparty supplementary services using Signalling System No. 7: Three-party service*.
- [19] ITU-T Recommendation Q.735.1 (1993), *Stage 3 description for community of interest supplementary services using Signalling System No. 7: Closed User Group (CUG)*.
- [20] ITU-T Recommendation Q.735.3 (1993), *Stage 3 description for community of interest supplementary services using Signalling System No. 7: Multilevel precedence and preemption*.

- [21] ITU-T Recommendation Q.737.1 (1993), *Stage 3 description for additional information transfer supplementary services using Signalling System No. 7: User-to-User Signalling (UUS)*.
- [22] ITU-T Recommendation Q.761 (1993), *Functional description of the ISDN user part of Signalling System No. 7*.
- [23] ITU-T Recommendation Q.762 (1993), *General function of messages and signals of the ISDN user part of Signalling System No. 7*.
- [24] ITU-T Recommendation Q.763 (1993), *Formats and codes of the ISDN user part of Signalling System No. 7*.
- [25] ITU-T Recommendation Q.764 (1993), *ISDN user part signalling procedures*.
- [26] CCITT Recommendation Q.767 (1991), *Applications of ISUP for international ISDN interconnections*.
- [27] ITU-T Recommendation Q.780 (1995), *Signalling System No. 7 test specification – General description*.
- [28] CCITT Recommendation Q.784 (1991), *ISUP basic call test specification*.
- [29] CCITT Recommendation Q.785 (1991), *ISUP test specification for supplementary services*.
- [30] ITU-T Recommendation Q.850 (1993), *Use of cause and location in the digital subscriber Signalling System No. 1 and Signalling System No. 7 ISDN user part*.
- [31] ITU-T Recommendation Q.931 (1993), *ISDN user-network interface layer 3 specification for basic call control*.
- [32] ITU-T Recommendation Q.939 (1993), *Typical DSS 1 service indicator codings for ISDN telecommunications services*.
- [33] ITU-T Recommendation Q.950 (1993), *Digital Subscriber Signalling System No. 1 (DSS 1) – Supplementary services protocols, structure and general principles*.
- [34] ITU-T Recommendation Q.951.3 (1993), *Stage 3 description for number identification supplementary services using DSS 1: Calling Line Identification Presentation (CLIP)*.
- [35] ITU-T Recommendation Q.951.4 (1993), *Stage 3 description for number identification supplementary services using DSS 1: Calling Line Identification Restriction (CLIR)*.
- [36] ITU-T Recommendation Q.951.5 (1993), *Stage 3 description for number identification supplementary services using DSS 1: Connected Line Identification Presentation (COLP)*.
- [37] ITU-T Recommendation Q.951.6 (1993), *Stage 3 description for number identification supplementary services using DSS 1: Connected Line Identification Restriction (COLR)*.
- [38] ITU-T Recommendation Q.951.7 (1997), *Stage 3 description for number identification supplementary services using DSS 1: Malicious Call Identification (MCID)*.
- [39] CCITT Recommendation Q.951.8 (1992), *Stage 3 description for number identification supplementary services using DSS 1: Sub-addressing*.
- [40] CCITT Recommendation Q.953.1 (1992), *ISDN stage 3 description for call completion supplementary services using DSS 1: Call waiting*.
- [41] ITU-T Recommendation Q.953.2 (1993), *ISDN stage 3 description for call completion supplementary services using DSS 1: Call hold*.

- [42] ITU-T Recommendation Q.953.4 (1995), *ISDN stage 3 description for call completion supplementary services using DSS 1: Terminal portability.*
- [43] ITU-T Recommendation Q.954.2 (1995), *Stage 3 description for multiparty supplementary services using DSS 1: Three-party service.*
- [44] CCITT Recommendation Q.955.1 (1992), *Stage 3 description for community of interest supplementary services using DSS 1: Closed user group.*
- [45] ITU-T Recommendation Q.955.3 (1993), *Stage 3 description for community of interest supplementary services using DSS 1: Multilevel precedence and preemption.*
- [46] ITU-T Recommendation Q.957.1 (1993), *Stage 3 description for additional information transfer supplementary services using DSS 1: User-to-User Signalling (UUS).*

3 Terminology

3.1 Definitions

This Recommendation defines the following terms:

3.1.1 ISDN access: Access using DSS 1 interworking directly with ISUP.

3.1.2 non-ISDN access: Access using any signalling protocol other than DSS 1 interworking directly with ISUP.

3.1.3 undetermined access: Any type of access (ISDN or non-ISDN) interworking with ISUP over a non-ISDN network.

3.2 Abbreviations

This Recommendation uses the following abbreviations:

3PTY	Three-Party Service
ACM	Address Complete Message
ANM	Answer Message
asynch	asynchronous
ATP	Access Transport
BC	Bearer Capability
BCI	Backward Call Indicator
CCBS	Call Completion to Busy Subscriber
CLI	Calling Line Identity
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COL	Connected Line Identity
COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction

COMM	Communication
CON	Connect Message
CONF	Conference Calling
CONFIG	Configuration
COT	Continuity message
CPG	Call Progress message
CUG	Closed User Group
CW	Call Waiting
FAA	Facility Accepted message
FAR	Facility Request message
FCI	Forward Call Indicator
FRJ	Facility Reject message
GenNot	Generic Notification
HLC	High Layer Compatibility
HOLD	Call Hold
IAM	Initial Address Message
IDR	Identification Request message
IE	Information Element
Ind	Indicator
Info	Information
IPI	ISUP Preference Indicator
IRS	Identification Response Message
ISC	International Switching Centre
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
LFB	Look For Busy
LLC	Low Layer Compatibility
MCID	Malicious Call Identification
MLPP	Multi-level Precedence and Preemption
NCI	Nature of Connection Indicator
OBCI	Optional Backward Call Indicator
OFCI	Optional Forward Call Indicator
PI	Progress Indicator
PROG	Progress message

REF	Reference
REL	Release message
RES	Resume message
RLC	Release Complete message
RnNbRes	Redirection Number Restriction indicator
SGM	Segmentation Message
SUB	Sub-addressing
SUS	Suspend message
synch	synchronous
TMR'	Transmission Medium Requirement Prime
TMR	Transmission Medium Requirement
TMU	Transmission Medium Used
TP	Terminal Portability
UDI	Unrestricted Digital Information
UNI	User Network Interface
USI'	User Service Information Prime
USI	User Service Information
USR	User-to-User Information Message
UUI	User-to-User Information
UUInd	User-to-User Indicator
UUS	User-to-User Signalling
UUS1	User-to-User Signalling service 1
UUS2	User-to-User Signalling service 2
UUS3	User-to-User Signalling service 3

4 Objective of the test specification

The objective of these test specifications is to assure the compatibility of the protocol mappings and call control in a user-to-user ISDN/non-ISDN/undetermined access signalling relation, i.e. Network A access (ISDN, non-ISDN, undetermined), Network A transit ISUP (Q.764 or equivalent), International ISUP, Network B transit ISUP (Q.764 or equivalent), and Network B access (ISDN, non-ISDN, undetermined). In some test cases, there is additionally a Network C access (ISDN), Network C transit ISUP (Q.764 or equivalent), and a Network D transit ISUP (Q.764 or equivalent), and Network D access (ISDN) interconnected via the international ISUP to Network B. These test specifications are based on Recommendations Q.699 [2], Q.767 [26], Q.761 to Q.764 [22]-[25], Q.931 [31], Q.73x-Series [3]-[21], and the Q.950-Series of Recommendations [33]-[46]. Call control and transmission, as well as signalling protocols, are integral parts of these tests.

As currently specified, the ISUP protocol contains many implementations choices, with optional parameters and even within mandatory parameters. Given that it is unlikely that two Administrations have made the same implementation choices, testing must be performed to check the compatibility of the implementations. The national access protocols can be even more disparate. Many Administrations have access protocols based on earlier versions of Recommendation Q.931 to 932. The mapping of signalling information from UNI-to-UNI to meet Recommendations Q.761 to 764 or Q.767 and to accommodate interworking signalling protocols is partially addressed in Recommendation Q.699.

In order to ascertain that these test specifications meet the above objectives, the following criteria are used:

- 1) All tests should add value in meeting the objective above. For example, the testing of timers of which the only function is to alert maintenance staff on expiration may not be useful.
- 2) These test specifications are not intended to provide exhaustive testing of all aspects of the signalling relation.
- 3) The proposed compatibility test specifications for interworkings between ISDN, non-ISDN, and undetermined accesses over international ISUP assume that each DSS 1 access implementation is equivalent to Recommendation Q.931, each transit ISUP implementation is modelled after Recommendation Q.764, and the international ISUP follows Recommendations Q.761 to Q.764, or Q.767.
- 4) Test specifications are arranged in four sections. The first section contains ISDN basic call control. The second section contains ISDN supplementary services. The third section contains undetermined access interworking. The last section contains non-ISDN access interworking.
- 5) Interactions between supplementary services are not subject of this Recommendation. Therefore only very few cases of interactions are described.
- 6) The ISUP'92 supplementary services described within this Recommendation are the services listed in Table 1/Q.761. All additional services are out of the scope of this Recommendation.

5 Scope of UNI-to-UNI compatibility testing

The compatibility testing principle is to test from UNI to UNI. It verifies that signalling information is mapped correctly octet by octet during interworking between national accesses, national networks, and the international network protocols. See Figure 1.

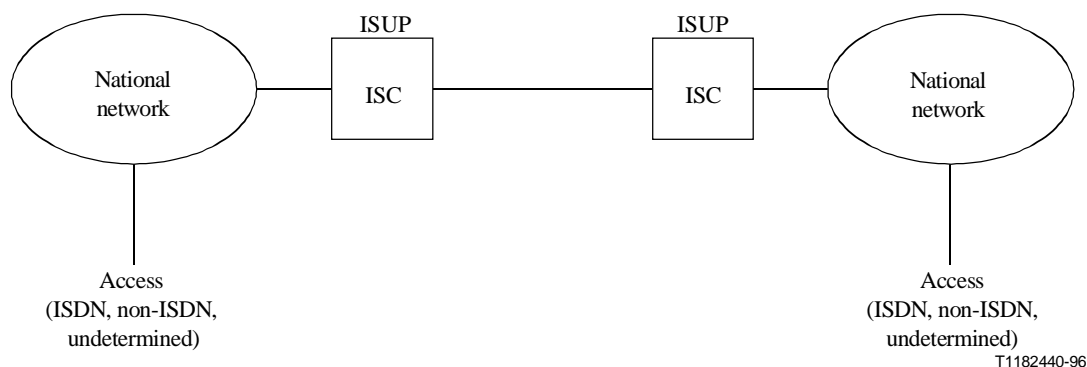


Figure 1/Q.788 – UNI-to-UNI test configuration

The testing is initiated by generating appropriate stimuli by an access tester at the UNI (e.g. DSS 1 S/T interface) and monitoring resulting message signalling unit traffic on each of the components of the signalling relation. Simulators or TE may be used to generate the appropriate stimuli needed for the test.

When there are multiple possible message flows for a test, the possible variations are labelled **Case a**, **Case b**, etc.

6 General principles of UNI-to-UNI tests

This Recommendation covers only ISUP functionality. SCCP/TC functionalities which are also used for some of the supplementary services e.g. CUG, MLPP etc. are not considered with the described tests.

For some supplementary services more than two networks can be involved. For practical reasons, it may be useful to have only two networks included for all tests. For example UNI B should belong to Network B. UNI A, UNI C and UNI D should all belong to Network A.

The correct behaviour of the echo control devices is not checked within this Recommendation. It is assumed that the echo control devices work correctly after being checked during Compatibility testing (Recommendation Q.784 [28]).

The description of the dynamic echo control procedure is out of the scope of this Recommendation. Even if the dynamic echo control procedure is in use during the tests, special codings and procedures are not described within the test descriptions.

The parameters and parameter values used for the Compatibility procedure are also not described in the test sheets. Possible reactions caused by this procedure are not described.

6.1 General pre-test conditions

For all tests it is assumed that there are general pre-test conditions. In exceptional cases the deviations to these pre-test conditions are handled under the point **Pre-test conditions** in each test description.

- 1) The circuits which will be used for the test calls should always be in the idle state.
- 2) The called terminal shall be free.

- 3) All of the ISDN access to ISDN access tests assume that ISUP signalling is used from UNI-to-UNI.
- 4) The terminals or simulators used to perform the tests should support all features of the service needed for the special test case.

7 Test environments

This clause shows the nine test configurations referenced in the individual test specifications.

In Figures 2 to 10 the designation "ISUP" means either ISUP'92 or Recommendation Q.767.

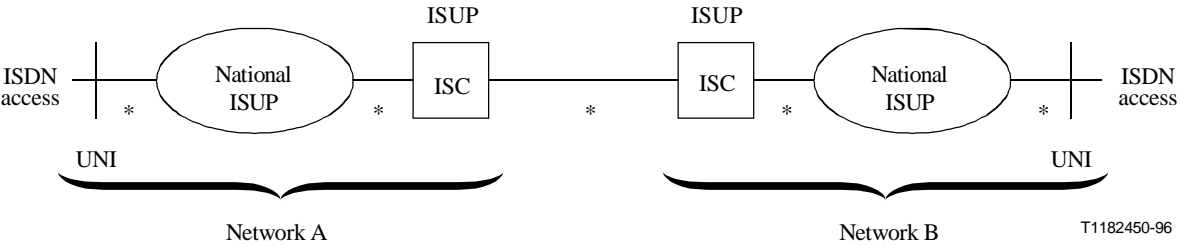


Figure 2/Q.788 – ISDN access to ISDN access test environment

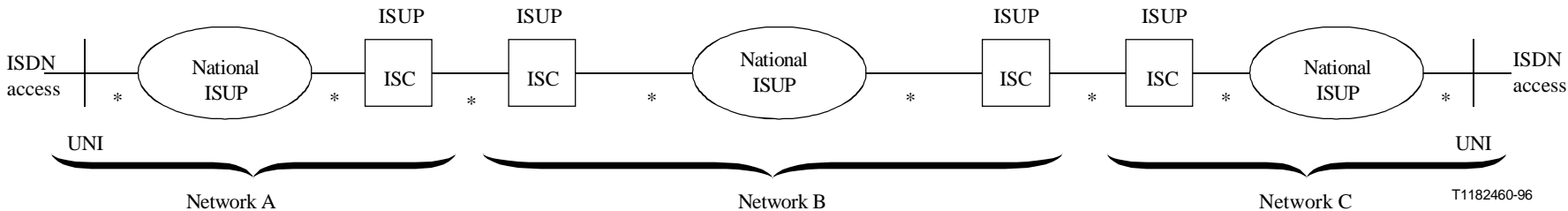


Figure 3/Q.788 – ISDN access to ISDN access test environment

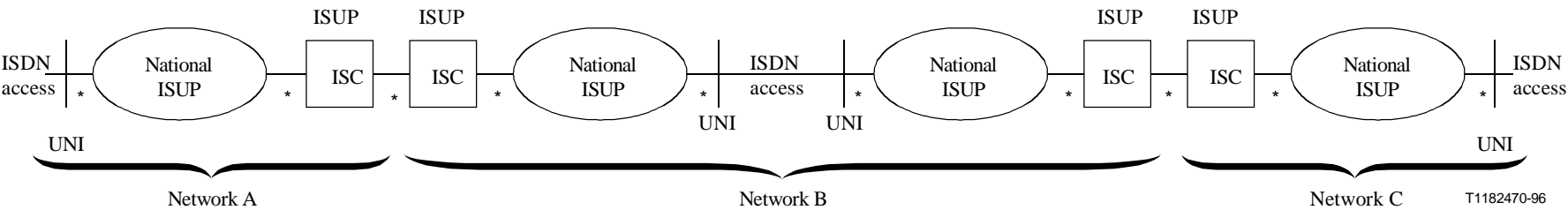


Figure 4/Q.788 – ISDN access to ISDN access test environment

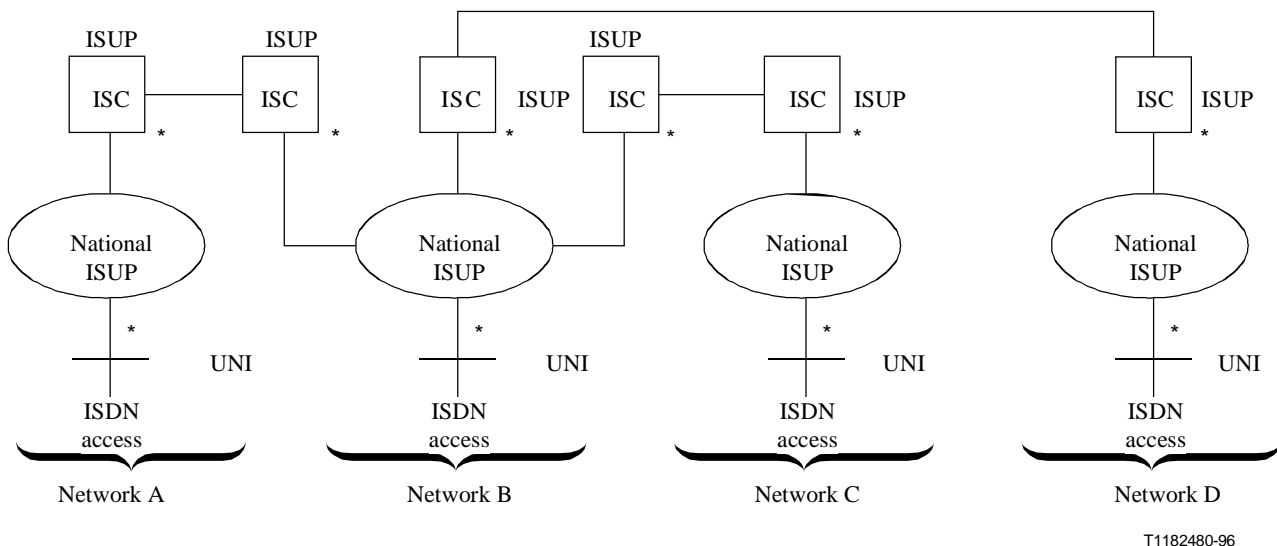


Figure 5/Q.788 – ISDN access to ISDN access test environment

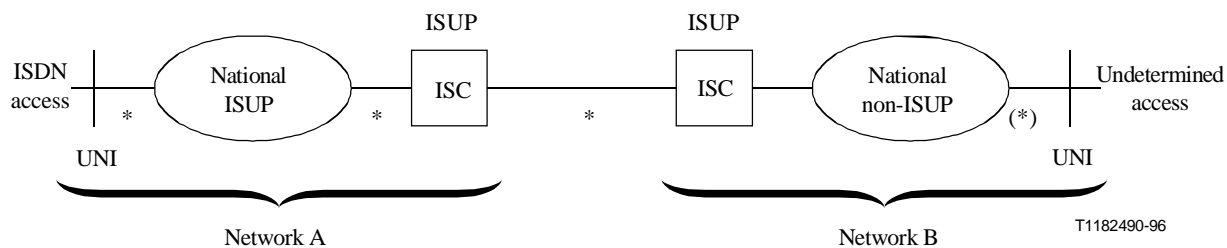


Figure 6/Q.788 – ISDN access to undetermined access test environment

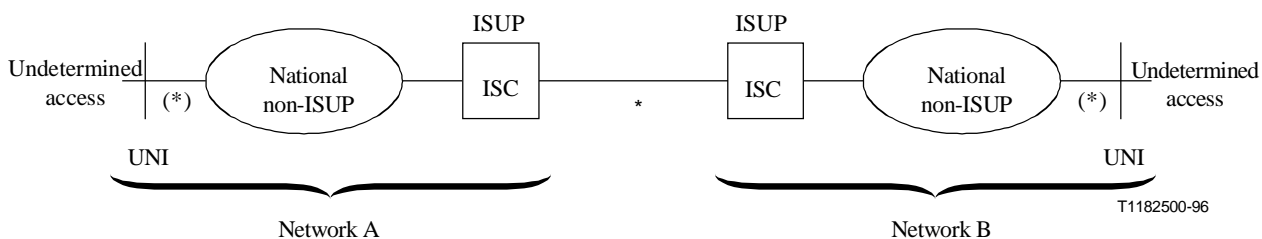


Figure 7/Q.788 – Undetermined access to undetermined access test environment

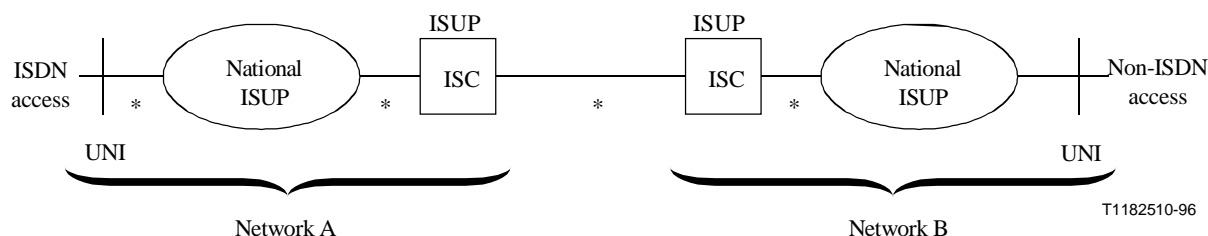


Figure 8/Q.788 – ISDN access to non-ISDN access test environment

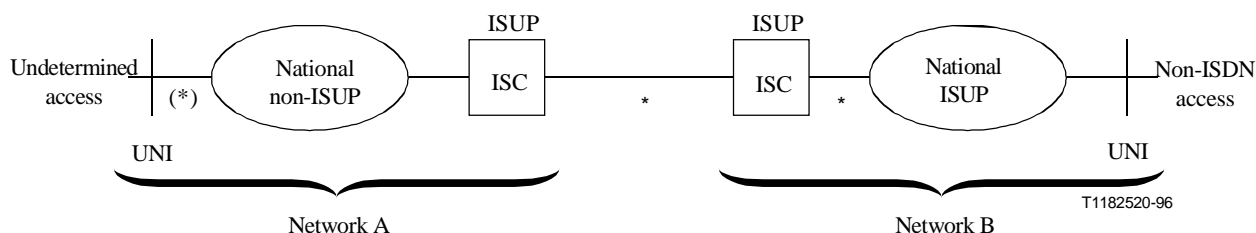


Figure 9/Q.788 – Undetermined access to non-ISDN access test environment

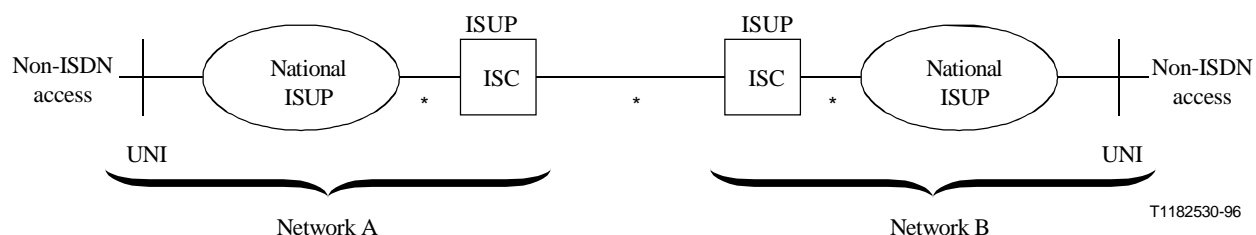


Figure 10/Q.788 – Non-ISDN access to non-ISDN access test environment

In each figure above, * indicates a component of the signalling relation where ISUP/DSS 1 messages can be verified. (*) indicates a component of the signalling relation where DSS 1 messages may be verified.

8 UNI-to-UNI Compatibility Test List

An "x" in the column "ISUP'92" in the list below means that all of the involved networks (ISC, national network) use ISUP'92; in test cases with ISDN accesses and/or non-ISDN accesses, ISUP'92 is used between the involved local exchanges.

An "x" in the column "Comb" means that at least one of the networks (ISC, national network) uses ISUP'92 and at least one other network (ISC, national network) uses ISUP Recommendation Q.767 (*Blue Book*). In test cases with ISDN accesses and/or non-ISDN accesses this means that not all involved UNIs will receive information derived from ISUP'92 information.

The test list has a new format: the titles of the tests were compared.

Title		ISUP'92	Comb
1	ISUP/ISDN Basic Call Control		
1.1	<i>Successful call set-up</i>		
1.1.1	Basic Call set-up (BC)	X	X
1.1.2	<i>Transport of Progress Indicator information element</i>		
1.1.2.1	SETUP	X	X
1.1.2.2	PROGRESS/ALERT	X	X
1.1.2.3	CONNECT	X	X
1.1.3	<i>Transport of BC/HLC/LLC information elements</i>		
1.1.3.1	BC/HLC/LLC combinations	X	X
1.1.3.2	BC = 64 kbit/s with rate adaptation	X	X
1.1.3.3	BC = 56 kbit/s	X	X
1.1.4	<i>Fallback</i>		
1.1.4.1	Fallback successfully performed	X	
1.1.4.2	Fallback does not occur	X	
1.1.4.3	Fallback performed by Network A's ISC	X	X
1.1.5	<i>Segmentation</i>		
1.1.5.1	Simple Segmentation successful	X	
1.1.5.2	Segment discarded	X	X
1.1.6	<i>Multirate connection types</i>		
1.1.6.1	Successful call set-up	X	
1.1.6.2	Unsuccessful call set-up	X	X
1.2	<i>Normal call release</i>		
1.2.1	Calling party clears before answer	X	X
1.2.2	Calling party clears after answer	X	X
1.2.3	Called party clears after answer	X	X
1.3	<i>Unsuccessful call set-up</i>		
1.3.1	All circuits busy at the destination network	X	X
1.3.2	Dialling of an unallocated number	X	X
1.3.3	No route to destination	X	X
1.3.4	Calling to a busy subscriber	X	X
1.3.5	Address incomplete	X	X

Title		ISUP'92	Comb
1.4	<i>Abnormal situation during call</i>		
1.4.1	No response from the called party	X	X
1.4.2	No answer from the called party (T9/Q.764 expiration)	X	X
2	ISUP/ISDN Call Control with supplementary services		
2.1	<i>Calling Line Identification (CLI)</i>		
2.1.1	CLIP – network provided, without calling party subaddress	X	X
2.1.2	CLIP – network provided	X	X
2.1.3	CLIP – user provided, verified and passed	X	X
2.1.4	CLIP – user provided, not verified	X	X
2.1.5	CLIR – network provided, without calling party subaddress	X	X
2.1.6	CLIR – network provided	X	X
2.1.7	CLIR – user provided, verified and passed	X	X
2.1.8	CLIR – user provided, not verified	X	X
2.2	<i>Sub-addressing (SUB)</i>		
2.2.1	Transport of called party subaddress	X	X
2.3	<i>Connected Line Identification (COL)</i>		
2.3.1	COL – request	X	X
2.3.2	COLP – network provided	X	X
2.3.3	COLP – user provided, verified and passed	X	X
2.3.4	COLP – user provided, not verified	X	X
2.3.5	COLR – network provided	X	X
2.3.6	COLR – user provided, verified and passed	X	X
2.3.7	COLR – user provided, not verified	X	X
2.3.8	COL received but not requested	X	X
2.3.9	COL not available	X	X
2.4	<i>Closed User Group (CUG) – Decentralized</i>		
2.4.1	CUG call with outgoing access allowed (both UNIs belong to the same CUG)	X	X
2.4.2	CUG call with outgoing access allowed (called party not in a CUG)	X	X
2.4.3	CUG call with outgoing access allowed (one network supports CUG)	X	X
2.4.4	CUG call with outgoing access not allowed, to a network offering CUG (called party in same CUG)	X	X
2.4.5	CUG call with outgoing access not allowed, to a network offering CUG (called party outside CUG)	X	X

Title		ISUP'92	Comb
2.4.6	CUG call with outgoing access allowed, to a network offering CUG (called party in a different CUG, no incoming access allowed)	x	x
2.4.7	CUG call with outgoing access allowed, to a network offering CUG (called party in a different CUG, incoming access allowed)	x	x
2.4.8	CUG call with outgoing access not allowed, to a network offering CUG (called party in same CUG, incoming calls barred at Network B's UNI)	x	x
2.4.9	CUG call with outgoing access not allowed, to a network not offering CUG	x	x
2.4.10	Non-CUG call towards a CUG destination with incoming access not allowed	x	x
2.4.11	Non-CUG call towards a CUG destination with incoming access allowed	x	x
2.5	<i>Malicious Call Identification (MCID)</i>		
2.5.1	Successful request	x	
2.5.2	Unsuccessful request, MCID information not available or not supported	x	
2.5.3	Unsuccessful request, no response to IDR	x	x
2.6	<i>Call Forwarding Busy (CFB)</i>		
2.6.1	Call Forwarding Busy (network determined) – full notification	x	x
2.6.2	Call Forwarding Busy (network determined) – no notification	x	x
2.6.3	Call Forwarding Busy (user determined) – full notification	x	x
2.6.4	Call Forwarding Busy (user determined) – Unsuccessful	x	x
2.7	<i>Call Forwarding No Reply (CFNR)</i>		
2.7.1	Call Forwarding No Reply (option A, late release) – full notification	x	x
2.7.2	Call Forwarding No Reply (option A, late release) – no notification	x	x
2.7.3	Call Forwarding No Reply (option B, immediate release) – full notification	x	x
2.7.4	Call Forwarding No Reply (option A, late release) – Unsuccessful	x	x
2.7.5	Call Forwarding No Reply (option B, immediate release) – Unsuccessful	x	x
2.8	<i>Call Forwarding Unconditional (CFU)</i>		
2.8.1	Call Forwarding Unconditional – Successful – full notification	x	x
2.8.2	Call Forwarding Unconditional – Successful – no notification	x	x
2.8.3	Call Forwarding Unconditional – Unsuccessful	x	x

Title		ISUP'92	Comb
2.9	<i>Call Deflection (CD)</i>		
2.9.1	Call Deflection during alerting (option B, immediate release) – full notification	x	x
2.9.2	Call Deflection during alerting (option B, immediate release) – no notification	x	x
2.9.3	Call Deflection immediate response (option B, immediate release) – full notification	x	x
2.9.4	Call Deflection during alerting (option A, late release) – full notification	x	x
2.9.5	Call Deflection during alerting (option B, immediate release) – Unsuccessful	x	x
2.9.6	Call Deflection immediate response (option B, immediate release) – Unsuccessful	x	x
2.9.7	Call Deflection during alerting (option A, late release) – Unsuccessful	x	x
2.10	<i>Call Waiting (CW)</i>		
2.10.1	Call Waiting successful	x	x
2.10.2	Call Waiting rejection	x	x
2.10.3	Call Waiting ignored	x	x
2.11	<i>Call Hold (HOLD)</i>		
2.11.1	Hold and Retrieve during waiting for ANM	x	x
2.11.2	Hold call and clear before Retrieve during waiting for ANM	x	x
2.11.3	Hold and Retrieve during active phase	x	x
2.11.4	Hold during active phase; served user clears call during held state	x	x
2.11.5	Hold during active phase; non-served user clears call during held state	x	x
2.12	<i>Terminal Portability (TP)</i>		
2.12.1	Successful	x	x
2.12.2	Unsuccessful, Timer expiry	x	x
2.13	<i>Conference Calling (CONF)</i>		
2.13.1	Establishment of a conference and termination of the conference	x	x
2.13.2	Isolation, Reattachment and Disconnection of one party of the conference	x	x
2.13.3	Splitting and Adding of a party	x	x
2.13.4	Floating of a conference (explicit request)	x	x
2.13.5	Call clearing by served user when floating is allowed	x	x
2.14	<i>Three-Party Service (3PTY)</i>		
2.14.1	Invocation and splitting of a Three-party conversation	x	x
2.14.2	Served user disconnects one of the remote users	x	x
2.14.3	Disconnect sent by one of the remote users	x	x
2.14.4	Disconnect of the entire call	x	x

Title		ISUP'92	Comb
2.15	<i>User-to-User Signalling service 1 (UUS1)</i>		
2.15.1	Implicit request – Successful – UUI in the forward and backward messages	x	x
2.15.2	Implicit request – Discard of UUI by the network	x	x
2.15.3	Explicit request – Successful – UUI in the forward and backward messages	x	
2.15.4	Explicit request (not-essential) – Implicit rejection by the network	x	x
2.15.5	Explicit request (not-essential) – Explicit rejection by the network	x	
2.15.6	Explicit request (essential) – Explicit rejection by the network	x	
2.15.7	Explicit request (essential) – Explicit rejection by the called user	x	
2.16	<i>User-to-User Signalling service 2 (UUS2)</i>		
2.16.1	Successful – UUI in the forward and the backward direction	x	
2.16.2	Not-essential – Implicit network rejection	x	x
2.16.3	Not-essential – Explicit network rejection	x	
2.16.4	Essential – Explicit rejection	x	
2.16.5	Essential – Explicit rejection – multipoint	x	
2.17	<i>User-to-User Signalling service 3 (UUS3)</i>		
2.17.1	Successful – UUI in both directions, request during call establishment	x	
2.17.2	Not essential – Implicit network rejection, request during call establishment	x	x
2.17.3	Not essential – Explicit rejection, request during call establishment	x	
2.17.4	Essential – Explicit network rejection request during call establishment	x	
2.17.5	Request during call – Successful – UUI in both directions – Request during call	x	
2.17.6	Implicit rejection – Request during call	x	x
2.17.7	Explicit rejection – Request during call	x	
2.18	<i>Multi-level Precedence and Preemption (MLPP)</i>		
2.18.1	Invocation with no circuit congestion to MLPP subscriber	x	
2.18.2	Invocation with no circuit congestion to non-MLPP subscriber	x	x
2.18.3	Invocation when congestion encountered, release of circuit reserved for re-use	x	
2.18.4	Invocation when congestion encountered, release of circuit not reserved for re-use	x	
2.18.5	Invocation when congestion encountered, unsuccessful search for preemptable circuits	x	
2.18.6	Invocation when congestion encountered, precedence too low to preempt	x	

Title		ISUP'92	Comb
3 Undetermined Access Interworking			
3.1	<i>ISDN Access → Undetermined Access</i>		
3.1.1	<i>Normal call release</i>		
3.1.1.1	Calling party clears before answer	x	x
3.1.1.2	Calling party clears after answer	x	x
3.1.1.3	Called party suspends after answer	x	x
3.1.1.4	Called party suspends after answer, expiry of T6	x	x
3.1.1.5	Called party suspends after answer, expiry of T38	x	x
3.1.2	<i>Unsuccessful call set-up</i>		
3.1.2.1	All circuits busy at destination network	x	x
3.1.2.2	Dialling of an unallocated number	x	x
3.1.2.3	Calling to a busy subscriber	x	x
3.1.3	<i>Abnormal situation during a call</i>		
3.1.3.1	No answer from the called party – user alerted	x	x
3.2	<i>Undetermined Access → ISDN Access</i>		
3.2.1	<i>Normal call release</i>		
3.2.1.1	Calling party clears before answer	x	x
3.2.1.2	Calling party clears after answer	x	x
3.2.1.3	Called party clears after answer	x	x
3.2.2	<i>Unsuccessful call set-up</i>		
3.2.2.1	All circuits busy at destination network	x	x
3.2.2.2	Dialling of an unallocated number	x	x
3.2.2.3	No route to destination	x	x
3.2.2.4	Calling to a busy subscriber	x	x
3.2.2.5	Address incomplete	x	x
3.2.3	<i>Abnormal situation during call</i>		
3.2.3.1	No response from the called party	x	x
3.3	<i>Undetermined Access → Undetermined Access</i>		
3.3.1	<i>Normal call release</i>		
3.3.1.1	Calling party clears after answer	x	x
4 Non-ISDN Access Interworking			
4.1	<i>ISDN Access → Non-ISDN Access</i>		
4.1.1	<i>Normal call release</i>		
4.1.1.1	Calling party clears after answer	x	x

Title		ISUP'92	Comb
4.2	<i>Non-ISDN Access → ISDN Access</i>		
4.2.1	<i>Normal call release</i>		
4.2.1.1	Calling party clears after answer	x	x
4.3	<i>Undetermined Access → Non-ISDN Access</i>		
4.3.1	<i>Normal call release</i>		
4.3.1.1	Calling party clears after answer	x	x
4.4	<i>Non-ISDN Access → Undetermined Access</i>		
4.4.1	<i>Normal call release</i>		
4.4.1.1	Calling party clears after answer	x	x
4.5	<i>Non-ISDN Access → Non-ISDN Access</i>		
4.5.1	<i>Normal call release</i>		
4.5.1.1	Calling party clears after answer	x	x

9 UNI-to-UNI test descriptions

Test number: 1.1.1 **Ref.:** 2.1/Q.764, D.2.1/Q.767, 4.5.5/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Successful Call Set-up – Basic Call Set-up (BC)

Purpose: To verify that Basic calls can be set-up.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 1.1.2.1 **Ref.:** 3.3/Q.763, 4.3.2/Q.767, 3.1.16/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Successful Call Set-up – Transport of Progress indicator IE – SETUP

Purpose: To verify that progress information can be transported correctly.

Pre-test conditions: Arrange the stimulus such that the IAM message contains Progress Information in the Access Transport parameter.

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ATP: Progress information
		←	COT <i>Optional message</i>
Case a	ACM	→	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	ANM	→	
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	→	Event Info: alerting (0000001)
	ANM	→	
Case c	ACM	→	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	→	
	ANM	→	
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network B's UNI to Network A's UNI.
2. Check the presence of the PI in the SETUP message at Network A's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 1.1.2.2 **Ref.:** 3.3/Q.763, 4.3/Q.767, 3.1.1/Q.931 and 3.1.10/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Successful Call Set-up – Transport of Progress indicator IE – PROG/ALERT

Purpose: To verify that progress information can be transported correctly.

Pre-test conditions: Arrange the stimulus such that the ACM/CPG message contains Progress Information in the Access Transport parameter.

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
		←	COT <i>Optional message</i>
Case a	ACM	→	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), ATP: Progress information
	ANM	→	
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1) ATP: Progress information
	CPG	→	Event Info: alerting (0000001)
	ANM	→	
Case c	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	→	Event Info: alerting (0000001), ATP: Progress information
	ANM	→	
⇐ COMMUNICATION ⇒			
		←	REL Cause Ind.: Normal call clearing (16), location user (0000)
	RLC	→	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network B's UNI to Network A's UNI.
2. Check the presence of the PI in the ALERT/PROG message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network B's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 1.1.2.3 **Ref.:** 3.3/Q.763, 4.3.2/Q.767, 3.1.4/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Successful Call Set-up – Transport of Progress indicator IE – CONNECT

Purpose: To verify that Progress information can be transported correctly.

Pre-test conditions: Arrange the stimulus such that the ANM/CON message contains Progress Information in the Access Transport parameter.

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
		←	COT <i>Optional message</i>
Case a	ACM	→	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	ANM	→	ATP: Progress information
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	→	Event Info: alerting (0000001)
	ANM	→	ATP: Progress information.
Case c	CON	→	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), ATP: Progress information

⇐ COMMUNICATION ⇒

	←	REL Cause Ind.: Normal call clearing (16), location user (0000)
RLC	→	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network B's UNI to Network A's UNI.
2. Check the presence of the PI in the CON message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network B's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 1.1.3.1 **Ref.:** 3.3/Q.763, 4.3.2/Q.767, 4.5.5/Q.931, 4.5.16/Q.931 and 4.5.18/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Successful Call Set-up – Transport of BC/HLC/LLC IE – BC/HLC/LLC Combinations

Purpose: To verify that BC/HLC/LLC can be transported correctly as described in Recommendations Q.931/Q.939.

Pre-test conditions: Arrange the stimulus such that the USI (BC) = Speech and Access transport parameter contains HLC = Telephony; LLC = Speech.

Expected message sequence

Network A		Network B	
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), USI (BC), ATP (HLC, LLC) – see Note	
COT	→	<i>Optional message</i>	
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
REL	→	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

Test description (ISUP'92):

1. Make a call from Network A's UNI to Network B's UNI with correct BC/HLC/LLC.
2. Check the BC/HLC/LLC in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for at least the following BC/HLC/LLC combinations:

64/G4 Fax/64	64/Teletex/64	64/Videotex/64
64/Mixed-mode/64	3.1/G2-G3 fax/3.1	64pref/telephony/64pref
Videotelephony:	1. 64pref/audio visual/64pref	2. 64/audio visual/64
7. Repeat steps 1-6 with Networks A and B interchanged.

Test description (Comb):

1. Make a call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI with correct BC/HLC/LLC.
2. Check the BC/HLC/LLC in the SETUP message at Network A's UNI.
3. Check the propriety of digital data transmission or speech.

NOTE – For ISUP'92, it is also possible that the HLC parameter is transported in the user teleservice information additionally.

4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for all supported services either in Network A or in Network B or in both Networks, at least for the following BC/HLC/LLC combinations:

64/G4 Fax/64	64/Teletex/64	64/Videotex/64
64/Mixed-mode/64	3.1/G2-G3 fax/3.1	
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 1.1.3.2 **Ref.:** 3.3/Q.763, 4.3.3/Q.767, 4.5.5/Q.931 and 4.5.18/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Successful Call Set-up – Transport of BC/LLC IE – BC = 64 kbit/s with rate adaption

Purpose: To verify that BC = 64 kbit/s with rate adaption can be transported correctly.

Pre-test conditions: Arrange the stimulus such that the USI (BC) = 64 kbit/s and ATP (LLC) = user rate 1.2 kbit/s asynch.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), USI (BC), ATP (LLC)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a call from Network A's UNI to Network B's UNI with correct BC/LLC.
2. Check the BC/LLC in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for at least the following LLC combinations:
2.4 kbit/s asynch 4.8 kbit/s asynch 9.6 kbit/s asynch
14.4 kbit/s asynch 19.2 kbit/s asynch 19.2 kbit/s synch
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 1.1.3.3 **Ref.:** 3.3/Q.763, 4.3.3/Q.767, 4.5.5/Q.931 and 4.5.18/Q.931, 6.1.2.3/Q.939.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Successful Call Set-up – Transport of BC IE – BC = 56 kbit/s

Purpose: To verify that a 56 kbit/s call can be established correctly.

Pre-test conditions: Arrange the stimulus such that the USI (BC) = 56 kbit/s.

Expected message sequence

Network A		Network B	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), USI – see Note
	COT →		<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)

⇐ COMMUNICATION ⇒

	REL →		Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	

NOTE – The indication for 56 kbit/s may also be transported in the LLC element additionally.

Test description (ISUP'92, Comb):

1. Make a call from Network A's UNI to Network B's UNI with correct BC combination.
2. Check the BC in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 1.1.4.1 **Ref.:** 2.5/Q.764, 4.5.5/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Fallback – Fallback successfully performed

Purpose: To verify that the call can be established after Fallback.

Pre-test conditions: 1. Arrange routing in Network A such that Fallback does not occur.
2. Arrange routing in Network B such that Fallback occurs.

Expected message sequence

	Network A		Network B
	IAM	→	TMR: 64kbit/s pref, TMR': speech, USI: speech, USI': 7 kHz, FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM TMU: speech, BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM TMU: speech
Case c		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001), TMU: speech
		←	ANM
Case d		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM TMU: speech
Case e		←	CON TMU: speech, BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a call from Network A's UNI to Network B's UNI with BC = UDI with tones and announcements and BC = speech in the same SETUP.
2. Check that the call is established with BC = speech.
3. Check the propriety of speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 1.1.4.2 **Ref.:** 2.5/Q.764, 4.5.5/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Fallback – Fallback does not occur

Purpose: To verify that TMR', TMR, USI' and USI can be transported correctly.

Pre-test conditions: Arrange exchange data in both networks such that Fallback does not occur.

Expected message sequence

	Network A		Network B
	IAM	→	TMR: 64kbit/s pref, TMR': speech, USI: speech, USI': 7 kHz, FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a call from Network A's UNI to Network B's UNI with BC = UDI with tones and announcements and BC = speech in the same SETUP.
2. Check that the call is established with BC = UDI with tones and announcements.
3. Check the propriety of the communication.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 1.1.4.3 **Ref.:** 2.5/Q.764, 4.5.5/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Fallback – Fallback performed by Network A's ISC

Purpose: To verify that Network A's ISC can perform Fallback due to an ISUP version in Network B not supporting Fallback.

Pre-test conditions:

1. Only Network A supports Fallback.
2. Arrange the routing in Network A such that Fallback occurs in Network A.

Expected message sequence

	Network A		Network B
	IAM	→	TMR: speech, USI: speech, FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a call from Network A's UNI to Network B's UNI with BC = UDI with tones and announcements and BC = speech in the same SETUP.
2. Check that the call is established with BC = speech.
3. Check that TMU is generated in Network A's ISC.
4. Check the propriety of speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.

Test number: 1.1.5.1 **Ref.:** 2.1.12/Q.764, 5/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Segmentation – Simple Segmentation successful

Purpose: To verify that information can be transported in a SGM.

Pre-test conditions:

1. Both Networks support Segmentation.
2. Arrange a call set-up such that the content of the international IAM exceeds 272 octets.

Expected message sequence

Network A		Network B	
IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: additional information will be sent (1)	
COT	➔	<i>Optional message</i>	
SGM	➔		
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that all the information is received at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 1.1.5.2 **Ref.:** 2.1.12/Q.764, 5/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Segmentation – Segment discarded

Purpose: To verify that a call can be successfully established, even if SGM is discarded.

Pre-test conditions:

1. Only Network A supports Segmentation.
2. Arrange a call set-up such that the content of the international IAM exceeds 272 octets.

Expected message sequence

Network A		Network B	
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: additional information will be sent (1)	
COT	→	<i>Optional message</i>	
SGM	→		
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
REL	→	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that SETUP is received at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 1.1.6.1 **Ref.:** 2.1/Q.764, 4.5.5/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Multirate connection types – Successful call set-up

Purpose: To verify that multirate connection type calls can be successfully established.

Pre-test conditions: Both networks support multirate connection types.

Expected message sequence

Network A		Network B	
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), TMR, USI (BC)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)

⇐ COMMUNICATION ⇒

	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 2*64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for bearers 384 kbit/s, 1536 kbit/s and 1920 kbit/s.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 1.1.6.2 **Ref.:** 2.3/Q.764, 4.1/Q.767, 4.5.5/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Multirate connection types – Unsuccessful call set-up

Purpose: To verify that the call will be successfully released, if the connection type is not supported in Network B.

Pre-test conditions: Only Network A supports multirate connection types.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), TMR, USI (BC)
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: Bearer capability not implemented (65), location transit network (0011) or international network (0111)
RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a 2*64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for bearers 384 kbit/s, 1536 kbit/s and 1920 kbit/s.

Test number: 1.2.1 **Ref.:** 2.3.1/Q.764, 5.3.3/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Normal Call Release – Calling party clears before answer

Purpose: To verify that the calling party can successfully release a call prior to receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Do not answer the call at Network B's UNI.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 1.2.2 **Ref.:** 2.3.1/Q.764, 5.3.3/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Normal Call Release – Calling party clears after answer

Purpose: To verify that the calling party can successfully release a call after answer.

Pre-test conditions:

Expected message sequence

Network A		Network B	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT →		<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL →		Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 1.2.3 **Ref.:** 2.3.2/Q.764, 5.3.3/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Normal Call Release – Called party clears after answer

Purpose: To verify that a call can be successfully released in the backward direction.

Pre-test conditions:

Expected message sequence

Network A		Network B	
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)	
COT	→	<i>Optional message</i>	
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	←	REL	Cause Ind.: Normal call clearing (16), location user (0000)
RLC	→		

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network B's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 1.3.1 **Ref.:** 2.2/Q.764, 5.2.3.1/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Unsuccessful call set-up – All circuits busy at the destination network

Purpose: To verify that the call will be successfully released when all circuits are busy.

Pre-test conditions: All circuits are busy in international, national or access circuit groups.

Expected message sequence

Network A		Network B	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT →		<i>Optional message</i>
Case a	←	REL	Cause Ind.: No circuit available (34), location transit network (0011) or public network serving remote user (0100) or private network serving remote user (0101) or international network (0111)
	RLC →		
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	REL	Cause Ind.: No circuit available (34), location private network serving remote user (0101)
	RLC →		

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for speech and 3.1 kHz audio bearers.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 1.3.2 **Ref.:** 2.2/Q.764, 5.2.4/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Unsuccessful call set-up – Dialing of an unallocated number

Purpose: To verify that the call will be successfully released when an unallocated number is dialed.

Pre-test conditions: Called number is an unallocated subscriber number.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	REL Cause Ind.: Unallocated number (1), location public network serving remote user (0100) or private network serving remote user (0101)
	RLC	→	
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	REL Cause Ind.: Unallocated number (1), location public network serving remote user (0100) or private network serving remote user (0101)
	RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for speech and 3.1 kHz audio bearers.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 1.3.3 **Ref.:** 2.2/Q.764, 5.2.4/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Unsuccessful call set-up – No route to destination

Purpose: To verify that the call will be successfully released when there is no route to destination.

Pre-test conditions: Called party number has invalid country or national destination code.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: No route to destination (3), location transit network (0011) or international network (0111)
RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for speech and 3.1 kHz audio bearers.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 1.3.4 **Ref.:** 2.2/Q.764, 5.2.5.1/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Unsuccessful call set-up – Calling to a busy subscriber

Purpose: To verify that the call will be successfully released when dialing a busy subscriber.

Pre-test conditions: The called termination is busy.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	REL Cause Ind.: User busy (17), location user (0000) or public network serving remote user (0100) or private network serving remote user (0101)
	RLC	→	
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	REL Cause Ind.: User busy (17), location user (0000) or public network serving remote user (0100) or private network serving remote user (0101)
	RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for speech and 3.1 kHz audio bearers.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 1.3.5 **Ref.:** 2.2/Q.764, 5.2.4/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Unsuccessful call set-up – Address incomplete

Purpose: To verify that the call will be successfully released when the called number is incomplete.

Pre-test conditions: The dialed number should be incomplete.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: Address incomplete (28), location international network (0111), transit network (0011), public network serving remote user (0100) or private network serving remote user (0101)
RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for speech and 3.1 kHz audio bearers.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 1.4.1 **Ref.:** 2.2/Q.764, 5.2.5.4/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Abnormal situation during call – No response from the called party

Purpose: To verify that the call will be successfully released when there is no response to the SETUP message from the called party.

Pre-test conditions: Send no response to the SETUP message from called side.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	REL Cause Ind.: No user responding (18), location public network serving remote user (0100) or private network serving remote user (0101)
	RLC	→	
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	REL Cause Ind.: No user responding (18), location public network serving remote user (0100) or private network serving remote user (0101)
	RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that all resources are released after time equal to twice T303 (Q.931 network side).
3. Repeat the test for speech and 3.1 kHz audio bearers.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 1.4.2 **Ref.:** 2.1.4/Q.764, 5.2.5.4/Q.931.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Abnormal situation during call – No answer from the called party (T9/Q.764 expiration)

Purpose: To verify that the call will be successfully released when the T9/Q.764 wait for answer timer expires.

Pre-test conditions: Arrange the stimulus such that the wait for answer timer will expire.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
	REL	➔	Cause Ind.: No answer from user (19), location public network serving remote user (0100) or international network (0111)
		←	RLC

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for speech and 3.1 kHz audio bearers.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 2.1.1 **Ref.:** 3/Q.731, 3.5.2.1.1.2/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Calling Line Identification – CLIP – network provided without calling party subaddress

Purpose: To verify that CLI (network provided) can be correctly transferred in the Calling Party Number parameter.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a CLI-coded network provided and does not contain a calling party subaddress.
2. Arrange the exchange data such that the requested CLIP is supported.

Expected message sequence

Network A		Network B	
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number: network provided (11), Presentation allowed (00), calling party number present
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)

⇐ COMMUNICATION ⇒

	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the calling party number IE in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.1.2 **Ref.:** 3/Q.731, 3.5.2.1.1.2/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Calling Line Identification – CLIP – network provided

Purpose: To verify that CLI (network provided) and the calling party subaddress can be correctly transferred in the Calling Party Number and the Access Transport parameters.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a CLI-coded network provided and a calling party subaddress.
2. Arrange the exchange data such that the requested CLIP is supported.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number: network provided (11), Presentation allowed (00), calling party number present, ATP: calling party subaddress
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the calling party number and the calling party subaddress IEs in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.1.3 **Ref.:** 3/Q.731, 3.5.2.1.1.2/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Calling Line Identification – CLIP – user provided, verified and passed

Purpose: To verify that CLI (user provided, verified and passed) and calling party subaddress can be correctly transferred in the Calling Party Number and Access Transport parameter.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a CLI-coded user provided, verified and passed and a calling party subaddress.
2. Arrange exchange data such that the requested CLIP is supported.

Expected message sequence

Network A		Network B	
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number: user provided, verified and passed (01), Presentation allowed (00), calling party number present, ATP: calling party subaddress
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	➔	Cause Ind.: Normal call release (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the calling party number and the calling party subaddress IEs in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.1.4 **Ref.:** 3/Q.731, 3.5.2.1.1.3/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Calling Line Identification – CLIP – user provided, not verified

Purpose: To verify that CLI (network provided), the additional Calling Party Number (user provided, not verified) and the calling party subaddress can be correctly transferred in the Calling Party Number, Generic Number and Access Transport parameters.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a CLI-coded user provided, not verified and a calling party subaddress.
2. Arrange exchange data such that the requested CLIP is supported.

Expected message sequence

	Network A	Network B	
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number: network provided (11), Presentation allowed (00), calling party number present, Generic number: number qualifier indicator: additional calling party number (0000110), user provided, not verified (00), Presentation allowed (00), generic number present, ATP: calling party subaddress
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call release (16), location user (0000)
	←	RLC	

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the calling party number IE with the content of the generic number and the calling party subaddress IE and possibly a second calling party number IE in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test description (Comb):

1. Make a 64 kbit/s call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Verify the calling party number and the calling party subaddress IEs in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.1.5 **Ref.:** 4/Q.731, 4.5.2.2.1/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Calling Line Identification – CLIR – network provided – without calling party subaddress

Purpose: To verify that a restricted CLI (network provided) can be correctly transferred in the Calling Party Number parameter and that its contents will not be presented at Network B's UNI.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a CLI network provided.
2. Arrange exchange data such that the requested CLIR is supported.

Expected message sequence

Network A		Network B	
IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number: network provided (11), Presentation restricted (01), calling party number present	
COT	➔	<i>Optional message</i>	
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)

⇐ COMMUNICATION ⇒

REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the calling party number IE indicates presentation restricted and does not contain any number digit in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.1.6 **Ref.:** 4/Q.731, 4.5.2.2.1/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Calling Line Identification – CLIR – network provided

Purpose: To verify that a restricted CLI (network provided) and calling party subaddress can be correctly transferred in the Calling Party Number and Access Transport parameter and that its contents will not be presented at Network B's UNI.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a CLI-network provided, and the calling party subaddress.
2. Arrange exchange data such that the requested CLIR is supported.

Expected message sequence

Network A		Network B	
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number: network provided (11), Presentation restricted (01), calling party number present, ATP: calling party subaddress	
COT	→	<i>Optional message</i>	
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
REL	→	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the calling party number IE indicates presentation restricted and does not contain any number digit and calling party subaddress IE in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.1.7 **Ref.:** 4/Q.731, 4.5.2.2.1/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Calling Line Identification – CLIR – user provided, verified and passed

Purpose: To verify that a restricted CLI (user provided, verified and passed) and calling party subaddress can be correctly transferred in the Calling Party Number and Access Transport parameter.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a CLI user provided, verified and passed and calling party subaddress.
2. Arrange exchange data such that the requested CLIR is supported.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number: user provided, verified and passed (01), calling party number present, Presentation restricted (01), ATP: calling party subaddress
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)

⇐ COMMUNICATION ⇒

	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description(ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the calling party number IE indicates presentation restricted and does not contain any number digit and calling party subaddress IE in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.1.8 **Ref.:** 4/Q.731, 4/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Calling Line Identification – CLIR – user provided, not verified

Purpose: To verify that a restricted CLI (user provided, not verified), the additional Calling Party Number and the calling party subaddress can be correctly transferred in the Calling Party Number, Generic number and Access Transport parameter.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a CLI-network provided, a generic number user provided, not verified and a calling party subaddress.
2. Arrange exchange data such that the requested CLIR is supported.

Expected message sequence

Network A		Network B	
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number: network provided (11), Presentation restricted (01), calling party number present, Generic number: number qualifier indicator: additional calling party number (0000110), user provided, not verified (00), generic number present, Presentation restricted (01), ATP: calling party subaddress	
COT	→	<i>Optional message</i>	
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
REL	→	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the calling party number IE indicates presentation restricted and does not contain any number digit and calling party subaddress IE in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test description (Comb):

1. Make a 64 kbit/s call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Verify that the calling party number IE indicates presentation restricted and does not contain any number digit and calling party subaddress IE in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.2.1 **Ref.:** 8/Q.731, 8/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Subaddressing – Transport of called party subaddress

Purpose: To verify that called party subaddress can be transferred in the Access Transport parameter.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains called party subaddress.
2. Arrange exchange data such that the requested subaddressing is supported.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ATP: called party subaddress
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the called party subaddress IE in the SETUP message at Network B's UNI.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.3.1 **Ref.:** 5/Q.731, 5/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Connected Line Identification – COL – Request

Purpose: To verify that a request for COL can be correctly transferred in the Optional Forward Call Indicators parameter.

Pre-test conditions:

1. Arrange exchange data such that the IAM generated contains a request for COL.
2. Arrange exchange data such that the requested COLP is supported.

Expected message sequence

Network A		Network B	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: COL requested (1)
	COT →		<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	Connected Number: Presentation allowed (00), network provided (11), connected number present
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	Connected Number: Presentation allowed (00), network provided (11), connected number present
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), Connected Number: Presentation allowed (00), network provided (11), connected number present

⇐ COMMUNICATION ⇒

	REL →		Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the COL is requested in Optional FCI parameter in the IAM.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.3.2 **Ref.:** 5/Q.731, 5/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Connected Line Identification – COLP – network provided

Purpose: To verify that a COL (network provided) and a connected subaddress can be correctly transferred in the Connected Number and Access Transport parameters.

Pre-test conditions:

1. Arrange exchange data such that the IAM generated contains a request for COL.
2. Arrange the stimulus such that the ANM (CON) generated contains a COL – network provided, presentation allowed and the connected subaddress.
3. Arrange exchange data such that the requested COLP is supported.

Expected message sequence

Network A		Network B	
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: COL requested (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM Connected Number: Presentation allowed (00), network provided (11), connected number present, ATP: connected subaddress
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM Connected Number: Presentation allowed (00), network provided (11), connected number present, ATP: connected subaddress
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), Connected Number: Presentation allowed (00), network provided (11), connected number present, ATP: connected subaddress

⇐ COMMUNICATION ⇒

	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI .
2. Check the propriety of digital data transmission or speech.
3. Check the presence of the connected number and the connected subaddress IEs in the CONNECT message at Network A's UNI.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.3.3 **Ref.:** 5/Q.731, 5/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Connected Line Identification – COLP – user provided, verified and passed

Purpose: To verify that a COL (user provided, verified and passed) and a connected subaddress can be correctly transferred in the Connected Number and Access Transport parameters.

Pre-test conditions:

1. Arrange exchange data such that the IAM generated contains a request for COL.
2. Arrange exchange data such that the ANM (CON) generated contains a COL user provided, verified and passed and the connected subaddress.
3. Arrange exchange data such that the requested COLP is supported.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: COL requested (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM Connected Number: Presentation allowed (00), user provided, verified and passed (01), connected number present, ATP: connected subaddress
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM Connected Number: Presentation allowed (00), user provided, verified and passed (01), connected number present, ATP: connected subaddress
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), Connected Number: Presentation allowed (00), user provided, verified and passed (01), connected number present, ATP: connected subaddress
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI .
2. Check the propriety of digital data transmission or speech.
3. Check the presence of the connected number and the connected subaddress IEs in the CONNECT message at Network A's UNI.
4. Clear the call from Network A's UNI.

5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.3.4 **Ref.:** 5/Q.731, 5/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Connected Line Identification – COLP – user provided, not verified

Purpose: To verify that a COL (network provided), an additional connected number (user provided, not verified) and a connected subaddress can be correctly transferred in the Connected Number, Generic Number and Access Transport parameters.

Pre-test conditions:

1. Arrange exchange data such that the IAM generated contains a request for COL.
2. Arrange the stimulus such that the ANM (CON) generated contains a COL network provided, a generic number user provided, not verified and a connected subaddress.
3. Arrange exchange data such that the requested COLP is supported.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: COL requested (1)
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM Connected Number: Presentation allowed (00), network provided (11), connected number present, Generic number: number qualifier indicator: additional connected number (0000101), presentation allowed (00), user provided, not verified (00), generic number present, ATP: connected subaddress
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM Connected Number: Presentation allowed (00), network provided (11), connected number present, Generic number: number qualifier indicator: additional connected number (0000101), presentation allowed (00), user provided, not verified (00), generic number present, ATP: connected subaddress
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), Connected Number: Presentation allowed (00), network provided (11), connected number present, Generic number: number qualifier indicator: additional connected number (0000101), presentation allowed (00), user provided, not verified (00), generic number present, ATP: connected subaddress
⇐ COMMUNICATION ⇒			
	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Check the presence of the connected number, user provided, not verified and the connected subaddress IEs in the CONNECT message at Network A's UNI.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test description (Comb):

1. Make a 64 kbit/s call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Check the propriety of digital data transmission or speech.
3. Check the presence of the connected number, network provided and the connected subaddress IEs in the CONNECT message at Network A's UNI.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.3.5 **Ref.:** 6/Q.731, 6/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Connected Line Identification – COLR – network provided

Purpose: To verify that a restricted COL (network provided) and a connected subaddress can be correctly transferred in the Connected Number and Access Transport parameters.

Pre-test conditions:

1. Arrange exchange data such that the IAM generated contains a request for COL.
2. Arrange the stimulus such that the ANM (CON) generated contains a COL network provided and a connected subaddress.
3. Arrange exchange data such that the requested COLR is supported.

Expected message sequence

Network A		Network B	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: COL requested (1)
	COT →		<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	Connected Number: Presentation restricted (01), network provided (11), connected number present, ATP: connected subaddress
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	Connected Number: Presentation restricted (01), network provided (11), connected number present, ATP: connected subaddress
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), Connected Number: Presentation restricted (01), network provided (11), connected number present, ATP: connected subaddress

⇐ COMMUNICATION ⇒

REL →	Cause Ind.: Normal call clearing (16), location user (0000)
←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Verify that the connected number IE indicates presentation restricted and does not contain any number digit and connected subaddress in the CONNECT at Network A's UNI.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.3.6 **Ref.:** 6/Q.731, 6/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Connected Line Identification – COLR – user provided, verified and passed

Purpose: To verify that a restricted COL (user provided, verified and passed) and a connected subaddress can be correctly transferred in the Connected Number and Access Transport parameter.

- Pre-test conditions:**
1. Arrange exchange data such that the IAM generated contains a request for COL.
 2. Arrange the stimulus such that the ANM (CON) generated contains a COL user provided, verified and passed and a connected subaddress.
 3. Arrange exchange data such that the requested COLR is supported.

Expected message sequence

Network A		Network B	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: COL requested (1)
	COT →		<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	Connected Number: Presentation restricted (01), user provided, verified and passed (01), connected number present, ATP: connected subaddress
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	Connected Number: Presentation restricted (01), user provided, verified and passed (01), connected number present, ATP: connected subaddress
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), Connected Number: Presentation restricted (01), user provided, verified and passed (01), connected number present, ATP: connected subaddress
⇐ COMMUNICATION ⇒			
	REL →		Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI .
2. Check the propriety of digital data transmission or speech.
3. Verify that the connected number IE indicates presentation restricted and does not contain any number digit and connected subaddress in the CONNECT at Network A's UNI.

4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.3.7 **Ref.:** 6/Q.731, 6/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Connected Line Identification – COLR – user provided, not verified

Purpose: To verify that a restricted COL (network provided), an additional connected number (user provided, not verified) and a connected subaddress can be correctly transferred in the Connected Number, the Generic Number and the Access Transport parameter.

Pre-test conditions:

1. Arrange exchange data such that the IAM generated contains a request for COL.
2. Arrange the stimulus such that the ANM (CON) generated contains a COL network provided, a generic number user provided, not verified and a connected subaddress.
3. Arrange exchange data such that the requested COLR is supported.

Expected message sequence

Network A		Network B	
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: COL requested (1)
	COT	➔	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	Connected Number: Presentation restricted (01), network provided (11), connected number present, Generic number: number qualifier indicator: additional connected number (0000101), presentation restricted (01), user provided, not verified (00), generic number present, ATP: connected subaddress
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	Connected Number: Presentation restricted (01), network provided (11), connected number present, Generic number: number qualifier indicator: additional connected number (0000101), presentation restricted (01), user provided, not verified (00), generic number present, ATP: connected subaddress
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), Connected Number: Presentation restricted (01), network provided (11), connected number present, Generic number: number qualifier indicator: additional connected number (0000101), presentation restricted (01), user provided, not verified (00), generic number present, ATP: connected subaddress
⇐ COMMUNICATION ⇒			
	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Verify that the connected number IE indicates presentation restricted and does not contain any number digit and connected subaddress in the CONNECT at Network A's UNI.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test description (Comb):

1. Make a 64 kbit/s call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Check the propriety of digital data transmission or speech.
3. Verify that the connected number IE indicates presentation restricted and does not contain any number digit and connected subaddress in the CONNECT at Network A's UNI.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.3.8 **Ref.:** 5/Q.731, 5/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Connected Line Identification – COL received but not requested

Purpose: To verify that if a COL is received when it was not requested, the call is not rejected.

Pre-test conditions:

1. Arrange exchange data such that the IAM generated does not contain a request for COL.
2. Arrange the stimulus such that the ANM (CON) generated contains a COL.
3. Arrange exchange data such that the requested COL is supported.

Expected message sequence

Network A		Network B	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT →		<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	Connected Number: Presentation indicator (xx), screening indicator (xx), connected number present
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	Connected Number: Presentation indicator (xx), screening indicator (xx), connected number present
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), Connected Number: Presentation indicator (xx), screening indicator (xx), connected number present

⇐ COMMUNICATION ⇒

REL →	Cause Ind.: Normal call clearing (16), location user (0000)
←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 2.3.9 **Ref.:** 5/Q.951.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Connected Line Identification – COL not available

Purpose: To verify that an "address not available" COL can be correctly transferred in the Connected Number parameter.

Pre-test conditions:

1. Arrange exchange data such that the IAM generated contains a request for COL.
2. Arrange the stimulus such that the ANM (CON) generated contains COL not available.
3. Arrange exchange data such that the requested COLP is supported.

Expected message sequence

Network A		Network B	
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: COL requested (1)
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM Connected Number: Address not available (10), network provided (11)
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM Connected Number: Address not available (10), network provided (11)
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), Connected Number: Address not available (10), network provided (11)

⇐ COMMUNICATION ⇒

	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI .
2. Check the propriety of digital data transmission or speech.
3. Check the connected number not available information at Network A's UNI.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.4.1 **Ref.:** 1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – CUG call with outgoing access allowed (both UNIs belong to the same CUG)

Purpose: To verify that the parameters necessary for a CUG call with OFCI: Outgoing access allowed can be correctly transferred and that the call is successful.

Pre-test conditions: Arrange exchange data such that the requested CUG is supported and both parties belong to the same CUG.

Expected message sequence

Network A		Network B	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1) OFCI: CUG Call Indicator Outgoing access allowed (10), CUG interlock code included
	COT →		<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL →		Cause Ind.: Normal Call Clearing (16), location user (0000)
	←	RLC	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 2.4.2 **Ref.:** 1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – CUG call with outgoing access allowed (called party not in a CUG)

Purpose: To verify that the parameters necessary for a CUG call with OFCI: Outgoing access allowed can be correctly transferred and that the call is successful.

Pre-test conditions: Arrange exchange data such that the requested CUG is supported and only UNI A belongs to this CUG.

Expected message sequence

Network A		Network B	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1) OFCI: CUG Call Indicator Outgoing access allowed (10), CUG interlock code included
	COT →		<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL →		Cause Ind.: Normal Call Clearing (16), location user (0000)
	←	RLC	

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 2.4.3 **Ref.:** 1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – CUG call with outgoing access allowed (one network supports CUG)

Purpose: To verify that the parameters necessary for a CUG call with OFCI: Outgoing access allowed can be correctly transferred.

Pre-test conditions: Only Network A supports CUG.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: CUG Call Indicator: Outgoing access allowed (10), CUG interlock code included
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal Call Clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.4.4 **Ref.:** 1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – CUG call with outgoing access not allowed, to a network offering CUG (called party in same CUG)

Purpose: To verify that the parameters necessary for a CUG call with Outgoing access not allowed can be correctly transferred.

Pre-test conditions:

1. Both networks must offer CUG.
2. Arrange exchange data such that the requested CUG is supported and the called party is in same CUG.
3. Arrange exchange data such that no incoming calls barred on both ends.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ISUP required all the way (10), OFCI: CUG Call Indicator: Outgoing access not allowed (11), CUG interlock code included
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 2.4.5 **Ref.:** 1.5.2.5.1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – CUG call with outgoing access not allowed, to a network offering CUG (called party outside CUG)

Purpose: To verify that the parameters necessary for a CUG call with Outgoing access not allowed can be correctly transported.

Pre-test conditions:

1. Both networks must offer CUG.
2. Arrange exchange data such that the requested CUG is supported and the called party is not in CUG.

Expected message sequence

Network A		Network B
IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ISUP required all the way (10), OFCI: CUG Call Indicator: Outgoing access not allowed (11), CUG interlock code included
COT	➔	<i>Optional message</i>
	←	REL Cause Ind.: User not member of CUG (87), location public network serving remote user (0100)
RLC	➔	

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that the connection is released from Network B.
3. Check that all resources are released.
4. Repeat the test for speech and 3.1 kHz audio bearers.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 2.4.6 **Ref.:** 1.5.2.5.1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – CUG call with outgoing access allowed, to a network offering CUG (called party in a different CUG, no incoming access allowed)

Purpose: To verify that the parameters necessary for a CUG call with Outgoing access allowed can be correctly transported and that the call is rejected by Network B.

Pre-test conditions:

1. Both networks must offer CUG.
2. Arrange exchange data such that the requested CUG is supported and the called party belongs to a different CUG.
3. Arrange exchange data such that incoming access is not allowed at Network B's UNI.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: CUG Call Indicator: Outgoing access allowed (10), CUG interlock code included
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: User not member of CUG (87), location public network serving remote user (0100)
RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that the connection is released from Network B.
3. Check that all resources are released.
4. Repeat the test for speech and 3.1 kHz audio bearers.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 2.4.7 **Ref.:** 1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – CUG call with outgoing access allowed, to a network offering CUG (called party in a different CUG, incoming access allowed)

Purpose: To verify that the parameters necessary for a CUG call with OFCI: Outgoing access allowed can be correctly transferred and the call is successful.

Pre-test conditions:

1. Both networks support CUG.
2. Arrange exchange data such that Network B's UNI belongs to a different CUG.
3. Arrange exchange data such that incoming access is allowed at Network B's UNI.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), OFCI: CUG Call Indicator: Outgoing access allowed (10), CUG interlock code included
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal Call Clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 2.4.8 **Ref.:** 1.5.2.5.1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – CUG call with outgoing access not allowed, to a network offering CUG (called party in same CUG, incoming calls barred at Network B's UNI)

Purpose: To verify that the parameters necessary for a CUG call with Outgoing access not allowed can be correctly transferred and that the call is rejected.

Pre-test conditions:

1. Both networks must offer CUG.
2. Arrange exchange data such that the requested CUG is supported and the called party is in the same CUG.
3. Arrange exchange data such that incoming calls are barred at Network B's UNI.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ISUP required all the way (10), OFCI: CUG Call Indicator: Outgoing access not allowed (11), CUG interlock code included
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: Incoming calls barred within CUG (55), location public network serving remote user (0100)
RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that call is rejected at Network B.
3. Check that all resources are released.
4. Repeat the test for speech and 3.1 kHz audio bearers.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 2.4.9 **Ref.:** 1.5.2.4.2/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – CUG call with outgoing access not allowed, to a network not offering CUG.

Purpose: To verify that the parameters necessary for a CUG call with Outgoing access not allowed can be correctly transferred and that call is rejected by Network B.

Pre-test conditions:

1. Only Network A must offer CUG.
2. Arrange the exchange data such that Network A's UNI is member of a CUG.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ISUP required all the way (10), OFCI: CUG Call Indicator: Outgoing access not allowed (11), CUG interlock code included
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: Facility rejected (29), location international network (0111) – see Note
RLC	→	

NOTE – For ISUP'92 the diagnostic parameter "CUG without outgoing access" is included in the REL.

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that the connection is released from Network B's ISC.
3. Check that all resources are released.
4. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.4.10 **Ref.:** 1.5.2.5.1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – Non-CUG call towards a CUG destination with incoming access not allowed

Purpose: To verify that the call is rejected in Network B.

Pre-test conditions:

1. Arrange exchange data such that the requested CUG is supported in Network B and the called party belongs to a CUG.
2. Arrange exchange data such that incoming access is not allowed at Network B's UNI.

Expected message sequence

Network A		Network B
IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
COT	➔	<i>Optional message</i>
	←	REL Cause Ind.: User not member of CUG (87), location public network serving remote user (0100)
RLC	➔	

Test description (ISUP'92, Comb):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that the connection is released by Network B.
3. Check that all resources are released.
4. Repeat the test for speech and 3.1 kHz audio bearers.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 2.4.11 **Ref.:** 1/Q.735, 1/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Closed User Group – Decentralized – Non-CUG call towards a CUG destination with incoming access allowed

Purpose: To verify that the call can be successfully established.

Pre-test conditions:

1. Arrange exchange data such that the requested CUG is supported in Network B.
2. Arrange exchange data such that incoming access is allowed at Network B's UNI.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal Call Clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 2.5.1 **Ref.:** 7/Q.731, 7/Q.951.

Config.: Multiple ISDN Accesses (See Figure 2)

Title: Malicious Call Identification – Successful request

Purpose: To verify that in case of MCID request the appropriate parameters are received at Network B's local exchange.

Pre-test conditions:

1. Arrange the exchange data such that the requested MCID is supported at Network B's UNI.
2. CLI should not be included in the IAM.

Expected message sequence

Network A		Network B	
IAM	➔		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), No CLI is included
COT	➔		<i>Optional message</i>
	←	IDR	MCID request indicator: MCID requested (1)
IRS	➔		MCID response indicator: MCID included (1), Calling party number included, ATP included, Generic number included
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
REL	➔		Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that IDR is received at Network A's local exchange.
3. Check that IRS is received at Network B's local exchange.
4. Verify that Network B's UNI is alerted.
5. Check the propriety of data transmission or speech.
6. Invoke MCID service at Network B's UNI if appropriate and check that the invocation was initiated.
7. Check that information of IRS are registered in Network B.

8. Check that information of IRS is not available at Network B's UNI.
9. Clear the call from Network A's UNI.
10. Check that all resources are released.
11. Repeat the test for speech and 3.1 kHz audio bearers.
12. Repeat steps 1-11 with invocation during disconnect state and with permanent registration.
13. Repeat steps 1-12 with Networks A and B interchanged.

Test number: 2.5.2 **Ref.:** 7/Q.731, 7/Q.951.

Config.: Multiple ISDN Accesses (See Figure 2)

Title: Malicious Call Identification – Unsuccessful request, MCID information not available or not supported

Purpose: To verify that in case of MCID request, the IRS message is received at Network B's local exchange without MCID information.

Pre-test conditions:

1. Arrange the exchange data such that the requested MCID is supported at Network B's UNI.
2. CLI should not be included in the IAM.
3. MCID information is not available at Network A.

Expected message sequence

Network A		Network B
IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), No CLI is included
COT	➔	<i>Optional message</i>
	←	IDR MCID request indicator: MCID requested (1)
IRS	➔	MCID response indicator: MCID not included (0)
Case a	←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	ANM
Case b	←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG Event Info: alerting (0000001)
	←	ANM
Case c	←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒		
REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that IDR is received at Network A's local exchange.
3. Check that IRS is received at Network B's local exchange.
4. Verify that Network B's UNI is alerted.
5. Check the propriety of data transmission or speech.
6. Invoke MCID service at Network B's UNI if appropriate and check that the invocation was initiated.

7. Clear the call from Network A's UNI.
8. Check that no information is included in IRS.
9. Check that all resources are released.
10. Repeat the test for speech and 3.1 kHz audio bearers.
11. Repeat steps 1-10 with invocation during disconnect state and with permanent registration.
12. Repeat steps 1-11 with Networks A and B interchanged.

Test number: 2.5.3 **Ref.:** 7/Q.731, 7/Q.951.

Config.: Multiple ISDN Accesses (See Figure 2)

Title: Malicious Call Identification – Unsuccessful request, no response to IDR

Purpose: To verify that the call continues according to the basic call procedures after T_{MCID} (T39) expired.

Pre-test conditions:

1. Arrange the exchange data such that the requested MCID is supported at Network B's UNI.
2. CLI should not be included in the IAM.
3. Network A should not reply to IDR.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), No CLI is included
	COT	➔	<i>Optional message</i>
		⬅	IDR MCID request indicator: MCID requested (1)
Case a		⬅	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		⬅	ANM
Case b		⬅	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		⬅	CPG Event Info: alerting (0000001)
		⬅	ANM
Case c		⬅	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		⬅	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that IDR is sent by Network B.
3. Verify that Network B's UNI is alerted.
4. Check that the call establishment continues after T39 expiry.
5. Check the propriety of data transmission or speech.
6. Invoke MCID service at Network B's UNI if appropriate and check that the invocation was initiated.
7. Clear the call from Network A's UNI.
8. Check that all resources are released.
9. Repeat the test for speech and 3.1 kHz audio bearers.
10. Repeat steps 1-9 with invocation during disconnect state and with permanent registration.
11. Repeat steps 1-10 with Networks A and B interchanged.

Test description (Comb):

1. Make a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that IDR is sent by Network B.
3. Verify that Network B's UNI is alerted.
4. Check that the call establishment continues after T39 expiry.
5. Check the propriety of data transmission or speech.
6. Invoke MCID service at Network B's UNI if appropriate and check that the invocation was initiated.
7. Clear the call from Network A's UNI.
8. Check that all resources are released.
9. Repeat the test for speech and 3.1 kHz audio bearers.
10. Repeat steps 1-9 with invocation during disconnect state and with permanent registration.

Test number: 2.6.1 **Ref.:** 2/Q.732, 2/Q.952 and 5.5.2.3.2/Q.952.

Config.: Multiple ISDN Accesses (See Figure 3)

Title: Call Forwarding Busy (network determined) – full notification

Purpose: To verify that a call can be forwarded correctly if Network B encounters busy UNI B.

- Pre-test conditions:**
1. Arrange the exchange data such that the requested Call Forwarding busy is supported at Network B.
 2. Arrange exchange data such that all number parameters and notifications are delivered to the involved UNIs.
 3. Network B's UNI is busy.

Expected message sequence

Network A	Network B	Network C
IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
COT →		<i>Optional message</i>
	← ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011); Redirection number present, Call diversion Info: Notification subscription option, Presentation allowed with redirection number (010), Redirection reason user busy (0001)
	IAM →	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirecting ind. call diverted (011), Redirection counter (001), Redirecting reason user busy (0001); Redirecting number present, Presentation allowed (00); Original called number present, Presentation allowed (00); Calling party number present, Presentation allowed (00)
	COT →	<i>Optional message</i>
Case a	← ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	← CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	← ANM	
	← ANM	

Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)

⇐ COMMUNICATION ⇒

REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	
		←	RLC

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that the call is diverted to Network C's UNI.
3. Check that notification *Call forwarding on busy* is received at Network A's UNI.
4. Check that the *Redirection number* and *call diversion information* parameters are correctly received at Network A's UNI.
5. Check that the *Redirection information*, the *Original called number* and the *Redirecting number* parameters are correctly received at Network C's UNI.
6. Check that call is established between Network A's UNI and Network C's UNI.
7. Check the propriety of data transmission or speech.
8. Clear the call from Network A's UNI.
9. Check that all resources are released.
10. Repeat the test for speech and 3.1 kHz audio bearers.
11. Repeat steps 1-10 with Networks A and C interchanged.
12. Repeat steps 1-11 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that the call is diverted to Network C's (Q.767) UNI
3. Check that call is established between Network A's UNI and Network C's UNI.
4. Check the propriety of data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and C interchanged.

Test number: 2.6.2 **Ref.:** 2/Q.732, 2/Q.952 and 5.5.2.3.2/Q.952.

Config.: Multiple ISDN Accesses (See Figure 3)

Title: Call Forwarding Busy (network determined) – no notification

Purpose: To verify that a call can be forwarded correctly if Network B encounters busy UNI B.

- Pre-test conditions:**
1. Arrange the exchange data such that the requested Call Forwarding busy is supported at Network B.
 2. Arrange exchange data such that no number parameters and notifications are delivered to the involved UNIs.
 3. Network B's UNI is busy.

Expected message sequence

Network A	Network B	Network C		
IAM	➔		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation restricted (01)	
COT	➔		Optional message	
	➔	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011); Redirection number present, Call diversion Info: Notification subscription option, Presentation not allowed (001), Redirection reason user busy (0001)	
		IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirecting ind. call diverted, all redirection info presentation restricted (100), Redirection counter (1), Redirecting reason user busy (0001); Redirecting number present, Presentation restricted (01); Original called number present, Presentation restricted (01); Calling party number present, Presentation restricted (01)
		COT	➔	Optional message
Case a		➔	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)
	➔	CPG		Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
		➔	ANM	
	➔	ANM		

Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
	←	ANM	
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		REL →	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	
		← RLC	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that the call is diverted to Network C's UNI.
3. Check that no notification *Call forwarding on busy* is received at Network A's UNI.
4. Check that the *Redirection number* and *call diversion information* parameters are not received at Network A's UNI.
5. Check that the *Redirection information*, the *Original called number* and the *Redirecting number* parameters are not received at Network C's UNI.
6. Check that call is established between Network A's UNI and Network C's UNI.
7. Check the propriety of data transmission or speech.
8. Clear the call from Network A's UNI.
9. Check that all resources are released.
10. Repeat the test for speech and 3.1 kHz audio bearers.
11. Repeat steps 1-10 with Networks A and C interchanged.
12. Repeat steps 1-11 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that the call is diverted to Network C's (Q.767) UNI.
3. Check that call is established between Network A's UNI and Network C's UNI.
4. Check the propriety of data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and C interchanged.

Test number: 2.6.3 **Ref.:** 2/Q.732, 2/Q.952 and 5.5.2.3.3/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Forwarding Busy (user determined) – full notification

Purpose: To verify that a call can be forwarded correctly if Network B encounters busy UNI B.

Pre-test conditions:

1. Arrange the exchange data such that the requested Call Forwarding busy is supported at Network B.
2. Arrange exchange data such that all number parameters and notifications are delivered to the involved UNIs.
3. Called termination is busy, one B-channel is free.

Expected message sequence

	Network A	Network B	Network C
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011); Redirection number present, Call diversion Info: Notification subscription option, Presentation allowed with redirection number (010), Redirection reason user busy (0001)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: Progress (0000010); GenNot: Call is diverting (1111011); Redirection number present; Call diversion Info: Notification subscription option, Presentation allowed with redirection number (010), Redirection reason user busy (0001)
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirecting ind. call diverted (011), Redirection counter (001), Redirecting reason user busy (0001); Redirecting number present, Presentation allowed (00); Original called number present, Presentation allowed (00); Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>

Case A		← ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	← CPG		Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
		← ANM	
	← ANM		
Case B		← ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	← CPG		<i>Optional message</i> Event Info: Progress (0000010)
		← CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	← CPG		Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
		← ANM	
	← ANM		
Case C		← CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	← ANM		BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)

⇐ COMMUNICATION ⇒

REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
	← RLC		
		← RLC	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that a SETUP is sent to Network B's UNI and a REL user busy is received at Network B.
3. Check that the call is diverted to Network C's UNI.
4. Check that notification *Call forwarding on busy* is received at Network A's UNI.
5. Check that the *Redirection number* and *call diversion information* parameters are correctly received at Network A's UNI.
6. Check that *Redirection information*, the *Original called number* and the *Redirecting number* parameters are correctly received at Network C's UNI.
7. Check that call is established between Network A's UNI and Network C's UNI.
8. Check the propriety of data transmission or speech.

9. Clear the call from Network A's UNI.
10. Check that all resources are released.
11. Repeat the test for speech and 3.1 kHz audio bearers.
12. Repeat steps 1-11 with Networks A and C interchanged.
13. Repeat steps 1-12 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that the call is diverted to Network C's (Q.767) UNI.
3. Check that call is established between Network A's UNI and Network C's UNI.
4. Check the propriety of data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and C interchanged.

Test number: 2.6.4 **Ref.:** 2/Q.732, 2/Q.952 and 5.5.2.3.3/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Forwarding Busy (user determined) – Unsuccessful

Purpose: To verify that a call is released correctly if CFB was not successful.

Pre-test conditions:

1. Arrange the exchange data such that the requested Call Forwarding busy is supported at Network B.
2. Arrange exchange data such that all number parameters and notifications are delivered to the involved UNIs.
3. Called termination is busy, one B-channel is free.
4. Network C's UNI is user determined user busy.

Expected message sequence

	Network A	Network B	Network C
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011); Redirection number present, Call diversion Info: Notification subscription option, Presentation allowed with redirection number (010), Redirection reason user busy (0001)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: Progress (0000010); GenNot: Call is diverting (1111001); Redirection number present; Call diversion Info: Notification subscription option, Presentation allowed with redirection Number (010), Redirection reason user busy (0001)
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirecting ind. call diverted (011), Redirection counter (001), Redirecting reason user busy (0001); Redirecting number present, Presentation allowed (01); Original called number present, Presentation allowed (01); Calling party number present, Presentation allowed (01)
	COT	→	<i>Optional message</i>
Case A	←	REL	Cause Ind.: User busy (17), location user (0000)
	←	REL	Cause Ind.: User busy (17), location user (0000)
	RLC	→	
	RLC	→	

Network A	Network B	Network C	
Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
		←	REL
	←	REL	Cause Ind.: User busy (17), location user (0000)
		RLC	→
RLC	→		

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that a SETUP is sent to Network B's UNI and a RELEASE user busy is received at Network B.
3. Check that the call is diverted to Network C's UNI.
4. Check that notification *Call forwarding on busy* is received at Network A's UNI.
5. Check that *Redirection number* and *call diversion information* parameters are correctly received at Network A.
6. Check that the call is released by Network C's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.
9. Repeat steps 1-8 with Networks A and C interchanged.
10. Repeat steps 1-9 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that a SETUP is sent to Network B's UNI and a RELEASE user busy is received at Network B.
3. Check that the call is diverted to Network C's (Q.767) UNI.
4. Check that the call is released by Network C's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and C interchanged.

Test number: 2.7.1 **Ref.:** 2/Q.732, 3/Q.952 and 5.5.2.3.4/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Forwarding No Reply (option A, late release) – full notification

Purpose: To verify that a call can be forwarded correctly if Network B's UNI does not answer the call.

- Pre-test conditions:**
1. Arrange the exchange data such that the requested Call Forwarding No Reply is supported at Network B.
 2. Arrange exchange data such that all number parameters and notifications are delivered to the involved UNIs.
 3. Network B's UNI should not answer the call.

Expected message sequence

	Network A	Network B	Network C
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: alerting (0000001)
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirecting number present, Presentation allowed (00); Redirection Info: Redirecting ind. call diverted (011), Redirection counter (001), Redirecting reason no reply (0010); Original called number present, Presentation allowed (00); Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case A	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001); GenNot: Call is diverting (1111011); Call diversion Info: Notification subscription option Presentation allowed with redirection number (010), Redirection reason no reply (0010); Redirection number present, RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	
Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)

	←	CPG	Optional message Event Info: Progress (0000010)	
		←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
		←	CPG	Event Info: alerting (0000001), GenNot: Call is diverting (1111011); Call diversion Info: Notification subscription option, Presentation allowed with redirection number (010), Redirection reason no reply (0010); Redirection number present, RnNbRes: Presentation allowed (00)
		←	ANM	
		←	ANM	
Case C		←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
		←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1); GenNot: Call is diverting (1111011); Call diversion Info: Notification subscription option, Presentation allowed with redirection Number (010), Redirection reason no reply (0010); Redirection number present; Rn NbRes:Presentation allowed (00)

⇐ COMMUNICATION ⇒

	REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
		REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC	
		←	RLC	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted and the number parameters are correctly received.
3. Check that the ACM contains the OBCI: call diversion may occur.
4. Check that call is diverted to Network C's UNI after no reply timer expired.
5. Check that notification *Call forwarding no reply* is received at Network A's UNI.
6. Check that the *Redirection number* and *call diversion information* parameters are correctly received at Network A's UNI.
7. Check that Network C's UNI is alerted.
8. Check that the *Redirection information*, the *Original called number* and the *Redirecting number* parameters are correctly received at Network C's UNI.
9. Check that Network B's UNI is released.
10. Check that notification *Call is diverting* is received at Network A's UNI.
11. Check that all number parameters are correctly received at Network A's UNI.
12. Check that all number parameters are correctly received at Network C's UNI.
13. Check that call is established between Network A's UNI and Network C's UNI.

14. Check the propriety of data transmission or speech.
15. Clear the call from Network A's UNI.
16. Check that all resources are released.
17. Repeat the test for speech and 3.1 kHz audio bearers.
18. Repeat steps 1-17 with Networks A and C interchanged.
19. Repeat steps 1-18 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that Network B's UNI is alerted.
3. Check that call is diverted to Network C's (Q.767) UNI after no reply timer expired.
4. Check that Network C's UNI is alerted.
5. Check that Network B's UNI is released.
6. Check that call is established between Network A's UNI and Network C's UNI.
7. Check the propriety of data transmission or speech.
8. Clear the call from Network A's UNI.
9. Check that all resources are released.
10. Repeat the test for speech and 3.1 kHz audio bearers.
11. Repeat steps 1-10 with Networks A and C interchanged.

Test number: 2.7.2 **Ref.:** 2/Q.732, 3/Q.952 and 5.5.2.3.4/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Forwarding No Reply (option A, late release) – no notification

Purpose: To verify that a call can be forwarded correctly if Network B's UNI does not answer the call.

- Pre-test conditions:**
1. Arrange the exchange data such that the requested Call Forwarding No Reply is supported at Network B.
 2. Arrange exchange data such that no number parameters and notifications are delivered to the involved UNIs.
 3. Network B's UNI should not answer the call.

Expected message sequence

Network A	Network B	Network C
IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation restricted (01)
COT →		<i>Optional message</i>
Case a	← ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	← ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	← CPG	Event Info: alerting (0000001)
	IAM →	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirecting ind. call diverted, all redirection info presentation restricted (100), Redirection counter (001), Redirecting reason no reply (0010); Redirecting number present, Presentation restricted (01); Original called number present, Presentation restricted (01); Calling party number present, Presentation restricted (01)
	COT →	<i>Optional message</i>
Case A	← ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)
	← CPG	Event Info: alerting (0000001); GenNot: Call is diverting (1111011); Call diversion Info: Notification subscription option Presentation not allowed (001), Redirectionreason no reply (0010); Redirection number present, RnNbRes: Presentation restricted (01)
	← ANM	
	← ANM	

Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010);
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
	←	CPG	Event Info: alerting (0000001), GenNot: Call is diverting (1111011); Call diversion Info: Notification subscription option Presentation not allowed (001), Redirection reason no reply (0010); Redirection number present, Presentation restricted (01), RnNbRes: Presentation restricted (01)
	←	ANM	
	←	ANM	
Case C	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011); Call diversion Info: Notification subscription option Presentation not allowed (001), Redirection reason no reply (0010); Redirection number present, RnNbRes: Presentation restricted (01)

⇐ COMMUNICATION ⇒

REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
	REL →	Cause Ind.: Normal call clearing (16), location user (0000)
←	RLC	
	← RLC	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted and the number parameters are correctly received.
3. Check that the ACM contains the OBCI: call diversion may occur.
4. Check that call is diverted to Network C's UNI after no reply timer expired.
5. Check that no notification *Call forwarding no reply* is received at Network A's UNI.
6. Check that the *Redirection number* and *call diversion information* parameters are not received at Network A's UNI.
7. Check that Network C's UNI is alerted.
8. Check that the *Redirection information*, the *Original called number* and the *Redirecting number* parameters are not received at Network C's UNI.
9. Check that Network B's UNI is released.
10. Check that notification *Call is diverting* is not received at Network A's UNI.

11. Check that no number parameters are received at Network A's UNI.
12. Check that no number parameters are received at Network C's UNI.
13. Check that call is established between Network A's UNI and Network C's UNI.
14. Check the propriety of data transmission or speech.
15. Clear the call from Network A's UNI.
16. Check that all resources are released.
17. Repeat the test for speech and 3.1 kHz audio bearers.
18. Repeat steps 1-17 with Networks A and C interchanged.
19. Repeat steps 1-18 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that Network B's UNI is alerted.
3. Check that call is diverted to Network C's (Q.767) UNI after no reply timer expired.
4. Check that Network C's UNI is alerted.
5. Check that Network B's UNI is released.
6. Check that call is established between Network A's UNI and Network C's UNI.
7. Check the propriety of data transmission or speech.
8. Clear the call from Network A's UNI.
9. Check that all resources are released.
10. Repeat the test for speech and 3.1 kHz audio bearers.
11. Repeat steps 1-10 with Networks A and C interchanged.

Test number: 2.7.3 **Ref.:** 2/Q.732, 3/Q.952 and 5.5.2.3.4/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Forwarding No Reply (option B, immediate release) – full notification

Purpose: To verify that a call can be forwarded correctly if Network B's UNI does not answer the call.

- Pre-test conditions:**
1. Arrange the exchange data such that the requested Call Forwarding No Reply is supported at Network B.
 2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.
 3. Network B's UNI should not answer the call.

Expected message sequence

	Network A	Network B	Network C
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: alerting (0000001)
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (001), Redirecting reason no reply (0010), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
	←	CPG	Event Info: Progress (0000010), GenNot: Call is diverting (1111011), Call diversion Info: Redirection reason no reply (0010), Redirection number present
Case A	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	

Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	
Case C	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)

⇐ COMMUNICATION ⇒

REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	
		←	RLC

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted and the number parameters are correctly received.
3. Check that the ACM contains the OBCI: call diversion may occur.
4. Check that Network B's UNI is released.
5. Check that call is diverted to Network C's UNI after no reply timer expired.
6. Check that Network C's UNI is alerted.
7. Check that notification *Call is diverting* is received at Network A's UNI.
8. Check that all number parameters are correctly received at Network A's UNI.
9. Check that all number parameters are correctly received at Network C's UNI.
10. Check that call is established between Network A's UNI and Network C's UNI.
11. Check the propriety of data transmission or speech.
12. Clear the call from Network A's UNI.
13. Check that all resources are released.
14. Repeat the test for speech and 3.1 kHz audio bearers.
15. Repeat steps 1-14 with Networks A and C interchanged.
16. Repeat steps 1-15 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that Network B's UNI is alerted.
3. Check that Network B's UNI is released.
4. Check that call is diverted to Network C's (Q.767) UNI after no reply timer expired.
5. Check that Network C's UNI is alerted.
6. Check that call is established between Network A's UNI and Network C's UNI.
7. Check the propriety of data transmission or speech.
8. Clear the call from Network A's UNI.
9. Check that all resources are released.
10. Repeat the test for speech and 3.1 kHz audio bearers.
11. Repeat steps 1-10 with Networks A and C interchanged.

Test number: 2.7.4 **Ref.:** 2/Q.732, 3/Q.952 and 5.5.2.3.4/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Forwarding No Reply (option A, late release) – Unsuccessful

Purpose: To verify that the call is released correctly if CFNR was not successful.

Pre-test conditions:

1. Arrange the exchange data such that the requested Call Forwarding No Reply is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.
3. Network B's UNI should not answer the call.
4. Network C's UNI is user determined user busy.

Expected message sequence

	Network A	Network B	Network C
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: alerting (0000001)
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason no reply (0010), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case A	←	REL	Cause Ind.: User busy (17), location user (0000)
	RLC	→	
Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000011)
	←	REL	Cause Ind.: User busy (17), location user (0000)
	RLC	→	
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted and the number parameters are correctly received.
3. Check that the ACM contains the OBCI: call diversion may occur.
4. Check that call is diverted to Network C's UNI after no reply timer expired.
5. Network C's UNI clears the call to Network B's UNI.
6. Check that Network B's UNI is still alerted.
7. Clear the call from Network A's UNI.
8. Check that all resources are released.
9. Repeat the test for speech and 3.1 kHz audio bearers.
10. Repeat steps 1-9 with Networks A and C interchanged.
11. Repeat steps 1-10 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that Network B's UNI is alerted.
3. Check that call is diverted to Network C's (Q.767) UNI after no reply timer expired.
4. Network C's UNI clears the call to Network B's UNI.
5. Check that Network B's UNI is still alerted.
6. Clear the call from Network A's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.
9. Repeat steps 1-8 with Networks A and C interchanged.

Test number: 2.7.5 **Ref.:** 2/Q.732, 3/Q.952 and 5.5.2.3.4/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Forwarding No Reply (option B, immediate release) – Unsuccessful

Purpose: To verify that the call is released correctly if CFNR was not successful.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Forwarding No Reply is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.
3. Network B's UNI should not answer the call.
4. Network C's UNI is user determined user busy.

Expected message sequence

	Network A	Network B	Network C
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: alerting (0000001)
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason no reply (0010), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
	←	CPG	Event Info: Progress (0000010), GenNot: Call is diverting (1111011), Call diversion Info: Redirection reason no reply (0010), Redirection number present
Case A	←	REL	Cause Ind.: User busy (17), location user (0000)
	←	REL	Cause Ind.: User busy (17), location user (0000)
	RLC	→	
	RLC	→	

Case B		←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)	
		←	CPG	<i>Optional message</i> Event Info: Progress (0000010)	
			←	REL	Cause Ind.: User busy (17), location user (0000)
		←	REL	Cause Ind.: User busy (17), location user (0000)	
			RLC	→	
	RLC	→			

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted.
3. Check that the ACM contains the OBCI: call diversion may occur.
4. Check that call is diverted to Network C's UNI after no reply timer expired.
5. Check that Network B's UNI is released.
6. Check that the call is cleared from Network C's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.
9. Repeat steps 1-8 with Networks A and C interchanged.
10. Repeat steps 1-9 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI
2. Check that Network B's UNI is alerted.
3. Check that call is diverted to Network C's (Q.767) UNI after no reply timer expired.
4. Check that Network B's UNI is released.
5. Check that the call is cleared from Network C's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and C interchanged.

Test number: 2.8.1 **Ref.:** 2/Q.732, 2/Q.952 and 5.5.2.3.1/Q.952.

Config.: Multiple ISDN Accesses (See Figure 3)

Title: Call Forwarding Unconditional – Successful – full notification

Purpose: To verify that a call can be forwarded correctly in case of CFU.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Forwarding Unconditional is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.

Expected message sequence

Network A	Network B	Network C
IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
COT →		<i>Optional message</i>
	← ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011), Call diversion Info: Notification subscription option, Presentation allowed with redirection number (010), Redirection reason unconditional (0011), Redirection number present
	IAM →	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason unconditional (0011), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
	COT →	<i>Optional message</i>
Case a	← ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	← CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	← ANM	
	← ANM	

Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)

⇐ COMMUNICATION ⇒

REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
←	RLC		
	←	RLC	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that there is no reaction at UNI B.
3. Check that call is diverted to Network C's UNI.
4. Check that notification *Call forwarding unconditional* is received at Network A's UNI.
5. Check that all number parameters are correctly received at Network A's UNI.
6. Check that all number parameters are correctly received at Network C's UNI.
7. Check that call is established between Network A's UNI and Network C's UNI.
8. Check the propriety of data transmission or speech.
9. Clear the call from Network A's UNI.
10. Check that all resources are released.
11. Repeat the test for speech and 3.1 kHz audio bearers.
12. Repeat steps 1-11 with Networks A and C interchanged.
13. Repeat steps 1-12 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that there is no reaction at UNI B.
3. Check that call is diverted to Network C's (Q.767) UNI.
4. Check that call is established between Network A's UNI and Network C's UNI.
5. Check the propriety of data transmission or speech.
6. Clear the call from Network A's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.
9. Repeat steps 1-8 with Networks A and C interchanged.

Test number: 2.8.2 **Ref.:** 2/Q.732, 2/Q.952 and 5.5.2.3.1/Q.952.

Config.: Multiple ISDN Accesses (See Figure 3)

Title: Call Forwarding Unconditional – Successful – no notification

Purpose: To verify that a call can be forwarded correctly in case of CFU.

Pre-test conditions:

1. Arrange the exchange data such that the requested Call Forwarding Unconditional is supported at Network B.
2. Arrange exchange data such that no number parameters are delivered to the involved UNIs.

Expected message sequence

Network A	Network B	Network C
IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation restricted (01)
COT →		<i>Optional message</i>
	← ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011), Call diversion Info: Notification subscription option, Presentation not allowed (001), Redirection reason unconditional (0011), Redirection number present
	IAM →	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason unconditional (0011), Redirecting ind.: call diverted, all redirection info presentation restricted (100), Original called number present, Presentation restricted (01), Calling party number present, Presentation restricted (01), Redirecting number present, Presentation restricted (01)
	COT →	<i>Optional message</i>
Case a	← ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)
	← CPG	Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
		← ANM
	← ANM	

Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
	←	ANM	
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)

⇐ COMMUNICATION ⇒

REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	
		←	RLC

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that there is no reaction at UNI B.
3. Check that call is diverted to Network C's UNI.
4. Check that no notification *Call forwarding unconditional* is received at Network A's UNI.
5. Check that no number parameters are received at Network A's UNI.
6. Check that no number parameters are received at Network C's UNI.
7. Check that call is established between Network A's UNI and Network C's UNI.
8. Check the propriety of data transmission or speech.
9. Clear the call from Network A's UNI.
10. Check that all resources are released.
11. Repeat the test for speech and 3.1 kHz audio bearers.
12. Repeat steps 1-11 with Networks A and C interchanged.
13. Repeat steps 1-12 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that there is no reaction at UNI B.
3. Check that call is diverted to Network C's (Q.767) UNI.
4. Check that call is established between Network A's UNI and Network C's UNI.
5. Check the propriety of data transmission or speech.
6. Clear the call from Network A's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.
9. Repeat steps 1-8 with Networks A and C interchanged.

Test number: 2.8.3 **Ref.:** 2/Q.732, 4/Q.952 and 5.5.2.3.1/Q.952.

Config.: Multiple ISDN Accesses (See Figure 3)

Title: Call Forwarding Unconditional – Unsuccessful

Purpose: To verify that a call is released correctly if CFU was not successful.

Pre-test conditions:

1. Arrange the exchange data such that the requested Call Forwarding Unconditional is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.
3. Network C's UNI is user determined user busy.

Expected message sequence

	Network A	Network B	Network C	
	IAM	→		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→		<i>Optional message</i>
		←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011), Call diversion Info: Notification subscription option, Presentation allowed with redirection number (010), Redirection reason unconditional (0011), Redirection number present
		IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason unconditional (0011), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
		COT	→	<i>Optional message</i>
Case a		←	REL	Cause Ind.: User busy (17), location user (0000)
		←	REL	Cause Ind.: User busy (17), location user (0000)
		RLC	→	
	RLC	→		
Case b		←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
		←	REL	Cause Ind.: User busy (17), location user (0000)
		←	REL	Cause Ind.: User busy (17), location user (0000)
		RLC	→	
	RLC	→		

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that there is no reaction at UNI B.
3. Check that call is forwarded to Network C's UNI.
4. Check that notification *Call forwarding unconditional* is received at Network A's UNI.
5. Check that all number parameters are correctly received at Network A.
6. Check that call is released by Network C's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.
9. Repeat steps 1-8 with Networks A and C interchanged.
10. Repeat steps 1-9 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that there is no reaction at UNI B.
3. Check that call is forwarded to Network C's (Q.767) UNI.
4. Check that call is released by Network C's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and C interchanged.

Test number: 2.9.1 **Ref.:** 2/Q.732, 5/Q.952 and 5.5.2.3.5/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Deflection during alerting (option B, immediate release) – full notification

Purpose: To verify that a call can be deflected correctly by Network B's UNI.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Deflection is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.

Expected message sequence

	Network A	Network B	Network C
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00),
	COT	➔	Optional message
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: alerting (0000001)
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason deflection during alerting (0100), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
	COT	➔	Optional message
	←	CPG	Event Info: Progress (0000010), GenNot: Call is diverting (1111011), Call diversion Info: Notification subscription option Presentation allowed with redirection number (010), Redirection reason deflection during alerting (0100), Redirection number present
Case A	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	

Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	
Case C	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)

⇐ COMMUNICATION ⇒

REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	
		←	RLC

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted and all number parameters are correctly received.
3. Initiate Call Deflection at Network B's UNI.
4. Check that Network B's UNI is released.
5. Check that call is deflected to Network C's UNI.
6. Check that notification *Call deflection during alerting* is received at Network A's UNI.
7. Check that all number parameters are correctly received at Network A's UNI.
8. Check that all number parameters are correctly received at Network C's UNI.
9. Check that Network C's UNI is alerted.
10. Check that call is established between Network A's UNI and Network C's UNI.
11. Check the propriety of data transmission or speech.
12. Clear the call from Network A's UNI.
13. Check that all resources are released.
14. Repeat the test for speech and 3.1 kHz audio bearers.
15. Repeat steps 1-14 with Networks A and C interchanged.
16. Repeat steps 1-15 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that Network B's UNI is alerted.
3. Initiate Call Deflection at Network B's UNI.
4. Check that Network B's UNI is released.
5. Check that call is deflected to Network C's (Q.767) UNI.
6. Check that Network C's UNI is alerted.
7. Check that call is established between Network A's UNI and Network C's UNI.
8. Check the propriety of data transmission or speech.
9. Clear the call from Network A's UNI.
10. Check that all resources are released.
11. Repeat the test for speech and 3.1 kHz audio bearers.
12. Repeat steps 1-11 with Networks A and C interchanged.

Test number: 2.9.2 **Ref.:** 2/Q.732, 5/Q.952 and 5.5.2.3.5/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Deflection during alerting (option B, immediate release) – no notification

Purpose: To verify that a call can be deflected correctly by Network B's UNI.

Pre-test conditions:

1. Arrange the exchange data such that the requested Call Deflection is supported at Network B.
2. Arrange exchange data such that no number parameters are delivered to the involved UNIs.

Expected message sequence

	Network A	Network B	Network C
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation restricted (01)
	COT	➔	Optional message
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: alerting (0000001)
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason deflection during alerting (0100), Redirecting ind.: call diverted, all redirection info presentation restricted (100), Original called number present, Presentation restricted (01), Calling party number present, Presentation restricted (01), Redirecting number present, Presentation restricted (01)
	COT	➔	Optional message
	←	CPG	Event Info: Progress (0000010), GenNot: Call is diverting (1111011), Call diversion Info: Notification subscription option Presentation not allowed (001), Redirection reason deflection during alerting (0100), Redirection number present
Case A	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
	←	ANM	
	←	ANM	

Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation restricted (01)
	←	ANM	
	←	ANM	
Case C	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation restricted (01)

⇐ COMMUNICATION ⇒

REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
←	RLC		
	←	RLC	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted and all number parameters are correctly received.
3. Initiate Call Deflection at Network B's UNI.
4. Check that Network B's UNI is released.
5. Check that call is deflected to Network C's UNI.
6. Check that no notification *Call deflection during alerting* is received at Network A's UNI.
7. Check that no number parameters are received at Network A's UNI.
8. Check that no number parameters are received at Network C's UNI.
9. Check that Network C's UNI is alerted.
10. Check that call is established between Network A's UNI and Network C's UNI.
11. Check the propriety of data transmission or speech.
12. Clear the call from Network A's UNI.
13. Check that all resources are released.
14. Repeat the test for speech and 3.1 kHz audio bearers.
15. Repeat steps 1-14 with Networks A and C interchanged.
16. Repeat steps 1-15 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that Network B's UNI is alerted.
3. Initiate Call Deflection at Network B's UNI.
4. Check that Network B's UNI is released.
5. Check that call is deflected to Network C's (Q.767) UNI.
6. Check that Network C's UNI is alerted.
7. Check that call is established between Network A's UNI and Network C's UNI.
8. Check the propriety of data transmission or speech.
9. Clear the call from Network A's UNI.
10. Check that all resources are released.
11. Repeat the test for speech and 3.1 kHz audio bearers.
12. Repeat steps 1-11 with Networks A and C interchanged.

Test number: 2.9.3 **Ref.:** 2/Q.732, 5/Q.952 and 5.5.2.3.5/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Deflection immediate response (option B, immediate release) – full notification

Purpose: To verify that a call can be deflected correctly by Network B's UNI.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Deflection is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.

Expected message sequence

	Network A	Network B	Network C	
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)	
	COT	➔	Optional message	
Case a	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011)	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)	
		IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason deflection immediate response (0101), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
		COT	➔	Optional message
	←	CPG	Event Info: Progress (0000010), GenNot: Call is diverting (1111011), Call diversion Info: Redirection reason deflection immediate response (0101), Redirection number present	
Case A		←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)	
		←	ANM	
	←	ANM		

Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	
Case C	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)

⇐ COMMUNICATION ⇒

REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
←	RLC		
	←	RLC	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Initiate Call Deflection after SETUP at Network B's UNI.
3. Check that Network B's UNI is not alerted and that UNI B is released.
4. Check that call is deflected to Network C's UNI.
5. Check that notification *Call deflection immediate response* is received at Network A's UNI.
6. Check that all number parameters are correctly received at Network A's UNI.
7. Check that all number parameters are correctly received at Network C's UNI.
8. Check that Network C's UNI is alerted.
9. Check that call is established between Network A's UNI and Network C's UNI.
10. Check the propriety of data transmission or speech.
11. Clear the call from Network A's UNI.
12. Check that all resources are released.
13. Repeat the test for speech and 3.1 kHz audio bearers.
14. Repeat steps 1-13 with Networks A and C interchanged.
15. Repeat steps 1-14 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Initiate Call Deflection after SETUP at Network B's UNI.
3. Check that Network B's UNI is not alerted and that UNI B is released.
4. Check that call is deflected to Network (Q.767) C's UNI.
5. Check that Network C's UNI is alerted.
6. Check that call is established between Network A's UNI and Network C's UNI.
7. Check the propriety of data transmission or speech.
8. Clear the call from Network A's UNI.
9. Check that all resources are released.
10. Repeat the test for speech and 3.1 kHz audio bearers.
11. Repeat steps 1-10 with Networks A and C interchanged.

Test number: 2.9.4 **Ref.:** 2/Q.732, 5/Q.952 and 5.5.2.3.5/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Deflection during alerting (option A, late release) – full notification

Purpose: To verify that a call can be deflected correctly by Network B's UNI.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Deflection is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.

Expected message sequence

	Network A	Network B	Network C
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: alerting (0000001)
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason deflection during alerting (0100), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case A	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), GenNot: Call is diverting (1111011), Call diversion Info: Redirection reason deflection during alerting (0100), Redirection number present, RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	

Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	CPG	Event Info: alerting (0000001), RnNbRes: Presentation allowed (00)
	←	CPG	Event Info: alerting (0000001), GenNot: Call is diverting (1111011), Call diversion Info: Redirection reason deflection during alerting (0100), Redirection number present, Presentation allowed (00), RnNbRes: Presentation allowed (00)
	←	ANM	
	←	ANM	
Case C	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), RnNbRes: Presentation allowed (00)
	←	ANM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is diverting (1111011) Call diversion Info: Redirection reason deflection during alerting (0100), Redirection number present, Presentation allowed (00), RnNbRes: Presentation allowed (00)

⇐ COMMUNICATION ⇒

REL	→		Cause Ind.: Normal call clearing (16), location user (0000)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	
		←	RLC

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted and all number parameters are correctly received
3. Initiate Call Deflection at Network B's UNI.
4. Check that call is deflected to Network C's UNI.
5. Check that notification *Call deflection during alerting* is received at Network A's UNI.
6. Check that all number parameters are correctly received at Network A's UNI.
7. Check that all number parameters are correctly received at Network C's UNI.
8. Check that Network C's UNI is alerted.
9. Check that Network B's UNI is released.
10. Check that call is established between Network A's UNI and Network C's UNI.
11. Check the propriety of data transmission or speech.
12. Clear the call from Network A's UNI.
13. Check that all resources are released.

14. Repeat the test for speech and 3.1 kHz audio bearers.
15. Repeat steps 1-14 with Networks A and C interchanged.
16. Repeat steps 1-15 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that Network B's UNI is alerted.
3. Initiate Call Deflection at Network B's UNI.
4. Check that call is deflected to Network C's (Q.767) UNI.
5. Check that Network C's UNI is alerted.
6. Check that Network B's UNI is released.
7. Check that call is established between Network A's UNI and Network C's UNI.
8. Check the propriety of data transmission or speech.
9. Clear the call from Network A's UNI.
10. Check that all resources are released.
11. Repeat the test for speech and 3.1 kHz audio bearers.
12. Repeat steps 1-11 with Networks A and C interchanged.

Test number: 2.9.5 **Ref.:** 2/Q.732, 5/Q.952 and 5.5.2.3.5/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Deflection during alerting (option B, immediate release) – Unsuccessful

Purpose: To verify that a call is released correctly if Call Deflection was not successful.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Deflection is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.
3. Network C's UNI is user determined user busy.

Expected message sequence

	Network A	Network B	Network C
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: alerting (0000001)
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason deflection during alerting (0100), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
	←	CPG	Event Info: Progress (0000010), GenNot: Call is diverting (1111011), Call diversion Info: Redirection reason deflection during alerting (0100), Redirection number present
Case A	←	REL	Cause Ind.: User busy (17), location user (0000)
	←	REL	Cause Ind.: User busy (17), location user (0000)
	RLC	→	
	RLC	→	

Case B	← ACM		BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	← CPG		<i>Optional message</i> Event Info: Progress (0000010)
		← REL	Cause Ind.: User busy (17), location user (0000)
	← REL		Cause Ind.: User busy (17), location user (0000)
	RLC	→	
	RLC	→	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted and all number parameters are correctly received.
3. Initiate Call Deflection at Network B's UNI.
4. Check that Network B's UNI is released.
5. Check that call is deflected to Network C's UNI.
6. Check that notification *Call deflection during alerting* is received at Network A's UNI.
7. Check that all number parameters are correctly received at Network A.
8. Check that call is released by Network C's UNI.
9. Check that all resources are released.
10. Repeat the test for speech and 3.1 kHz audio bearers.
11. Repeat steps 1-10 with Networks A and C interchanged.
12. Repeat steps 1-11 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that Network B's UNI is alerted.
3. Initiate Call Deflection at Network B's UNI.
4. Check that Network B's UNI is released.
5. Check that call is deflected to Network C's (Q.767) UNI.
6. Check that call is released by Network C's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.
9. Repeat steps 1-8 with Networks A and C interchanged.

Test number: 2.9.6 **Ref.:** 2/Q.732, 5/Q.952 and 5.5.2.3.5/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Deflection immediate response (option B, immediate release) – Unsuccessful

Purpose: To verify that a call is released correctly if Call Deflection was unsuccessful.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Deflection is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.
3. Network C's UNI is user determined user busy.

Expected message sequence

Network A	Network B	Network C
IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
COT →		<i>Optional message</i>
	← ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	IAM →	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason deflection immediate response (0101), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
	COT →	<i>Optional message</i>
	← CPG	Event Info: Progress (0000010), GenNot: Call is diverting (1111011), Call diversion Info: Redirection reason deflection immediate response (0101), Redirection number present
Case a	← REL	Cause Ind.: User busy (17), location user (0000)
	RLC →	
	← REL	Cause Ind.: User busy (17), location user (0000)
	RLC →	
Case b	← ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	← CPG	<i>Optional message</i> Event Info: Progress (0000010)
	← REL	Cause Ind.: User busy (17), location user (0000)
	RLC →	
	← REL	Cause Ind.: User busy (17), location user (0000)
	RLC →	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that call is deflected immediately after receiving SETUP at Network B's UNI.
3. Check that Network B's UNI is not alerted and that UNI B is released.
4. Check that notification *Call deflection immediate response* is received at Network A's UNI.
5. Check that all number parameters are correctly received at Network A.
6. Check that call is released from Network C's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.
9. Repeat steps 1-8 with Networks A and C interchanged.
10. Repeat steps 1-9 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that call is deflected immediately after receiving SETUP at Network B's UNI.
3. Check that Network B's UNI is not alerted and that UNI B is released.
4. Check that call is released from Network C's (Q.767) UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and C interchanged.

Test number: 2.9.7 **Ref.:** 2/Q.732, 5/Q.952 and 5.5.2.3.5/Q.952.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Deflection during alerting (option A, late release) – Unsuccessful

Purpose: To verify that a call is released correctly if Call Deflection was not successful.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Deflection is supported at Network B.
2. Arrange exchange data such that all number parameters are delivered to the involved UNIs.
3. Network C's UNI is user determined user busy.

Expected message sequence

	Network A	Network B	Network C
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Calling party number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: call diversion may occur (1)
	←	CPG	Event Info: alerting (0000001)
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), Redirection Info: Redirection counter (1), Redirecting reason deflection during alerting (0100), Redirecting ind.: call diverted (011), Original called number present, Presentation allowed (00), Calling party number present, Presentation allowed (00), Redirecting number present, Presentation allowed (00)
	COT	→	<i>Optional message</i>
Case A	←	REL	Cause Ind.: User busy (17), location user (0000)
	RLC	→	
Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	<i>Optional message</i> Event Info: Progress (0000010)
	←	REL	Cause Ind.: User busy (17), location user (0000)
	RLC	→	
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
	←	RLC	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that Network B's UNI is alerted and all number parameters are correctly received.
3. Initiate Call Deflection at Network B's UNI.
4. Check that call is deflected to Network C's UNI.
5. Check that *notification call deflection during alerting* is received at Network A.
6. Check that call is released by Network C's UNI.
7. Check that Network B's UNI is still alerted.
8. Clear the call from Network A's UNI.
9. Check that all resources are released.
10. Repeat the test for speech and 3.1 kHz audio bearers.
11. Repeat steps 1-10 with Networks A and C interchanged.
12. Repeat steps 1-11 with Networks A and C in the role of Network B.

Test description (Comb):

1. Initiate a 64 kbit/s call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check that Network B's UNI is alerted.
3. Initiate Call Deflection at Network B's UNI.
4. Check that call is deflected to Network (Q.767) C's UNI.
7. Check that call is released by Network C's UNI.
6. Check that Network B's UNI is still alerted.
7. Clear the call from Network A's UNI.
8. Check that all resources are released.
9. Repeat the test for speech and 3.1 kHz audio bearers.
10. Repeat steps 1-9 with Networks A and C interchanged.

Test number: 2.10.1 **Ref.:** 1/Q.733, 1/Q.953.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Waiting successful

Purpose: To verify that a call can be established after Call Waiting.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Waiting is supported at Network B.
2. One channel available at Network B's UNI (all other channels are busy).

Expected message sequence

Network A	Network B	Network C	
IAM	→		Simplified call establishment
	←	ACM	
	←	ANM	

⇐ COMMUNICATION ⇒

		←	IAM	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
		←	COT	<i>Optional message</i>
Case a	ACM	→		BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is a waiting call (1100000)
Case b	ACM	→		BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	→		GenNot: Call is a waiting call (1100000), Event Info: alerting (0000001)
		←	REL	Cause Ind.: Normal call clearing (16), location user (0000)
	RLC	→		
	ANM	→		

⇐ COMMUNICATION ⇒

		←	REL	Cause Ind.: Normal call clearing (16), location user (0000)
	RLC	→		

Test description (ISUP'92):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Make a speech call from Network C's UNI to Network B's UNI.
4. Check that notification is received at Network C's UNI.
5. Clear the active call from Network B's UNI.
6. Check that Network B's UNI is alerted.
7. Network B's UNI answers the call from Network C's UNI.

8. Check the propriety of speech.
9. Clear the call from Network C's UNI.
10. Check that all resources are released.
11. Repeat the test for bearer 3.1 kHz audio.
12. Repeat steps 1-11 with Networks A and C interchanged.
13. Repeat steps 1-12 with Networks A and C in the role of Network B.

Test description (Comb):

1. Make a speech call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check the propriety of speech.
3. Make a speech call from Network C's (Q.767) UNI to Network B's UNI.
4. Clear the active call from Network B's UNI.
5. Check that Network B's UNI is alerted.
6. Network B's UNI answers the call from Network C's UNI.
7. Check the propriety of speech.
8. Clear the call from Network C's UNI.
9. Check that all resources are released.
10. Repeat the test for bearer 3.1 kHz audio.
11. Repeat steps 1-10 with Networks A and C interchanged.

Test number: 2.10.2 **Ref.:** 1/Q.733, 2/Q.953.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Waiting rejection

Purpose: Verify that a waiting call can be rejected.

Pre-test conditions:

1. Arrange exchange data such that the requested Call Waiting is supported at Network B's UNI.
2. One channel available at UNI B (all other channels are busy).

Expected message sequence

Network A	Network B	Network C	
IAM	➔		Simplified call establishment
	⬅	ACM	
	⬅	ANM	
⇐ COMMUNICATION ⇒			
	⬅	IAM	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	⬅	COT	<i>Optional message</i>
Case a	ACM	➔	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is a waiting call (1100000)
Case b	ACM	➔	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	➔	GenNot: Call is a waiting call (1100000), Event Info: alerting (0000001)
	REL	➔	Cause Ind.: Call rejected (21), location user (0000)
		⬅	RLC
⇐ COMMUNICATION ⇒			
	⬅	REL	Cause Ind.: Normal call clearing (16), location user (0000)
	RLC	➔	

Test description (ISUP'92):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Make a speech call from Network C's UNI to Network B's UNI.
4. Check that notification is received at Network C's UNI.
5. Reject the waiting call at Network B's UNI.
6. Check that all network resources between Network B and Network C and UNI C are released.
7. Check that the active call is still established.
8. Clear the active call from Network A's UNI.

9. Check that all resources are released.
10. Repeat the test for bearer 3.1 kHz audio.
11. Repeat steps 1-10 with Networks A and C interchanged.
12. Repeat steps 1-11 with Networks A and C in the role of Network B.

Test description (Comb):

1. Make a speech call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check the propriety of speech.
3. Make a speech call from Network C's (Q.767) UNI to Network B's UNI.
4. Reject the waiting call at Network B's UNI.
5. Check that all network resources between Network B and Network C and UNI C are released.
6. Check that the active call is still established.
7. Clear the active call from Network A's UNI.
8. Check that all resources are released.
9. Repeat the test for bearer 3.1 kHz audio.
10. Repeat steps 1-9 with Networks A and C interchanged.

Test number: 2.10.3 **Ref.:** 1/Q.733, 1/Q.953.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Call Waiting ignored

Purpose: Verify that a waiting call is released after the call waiting supervision timer or T9/Q.764 expired.

- Pre-test conditions:**
1. Arrange exchange data such that the requested Call Waiting is supported at Network B's UNI.
 2. One channel available at UNI B (all other channels are busy).

Expected message sequence

Network A		Network B		Network C	
	IAM	➔		Simplified call establishment	
		⬅	ACM		
		⬅	ANM		
⇐ COMMUNICATION ⇒					
			⬅	IAM	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
			⬅	COT	<i>Optional message</i>
Case a		ACM	➔		BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), GenNot: Call is a waiting call (1100000)
Case b		ACM	➔		BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		CPG	➔		GenNot: Call is a waiting call (1100000), Event Info: alerting (0000001)
Case A		↓	T9/ Q.764	⬅	REL Cause Ind.: No answer from user (19), location public network serving remote user (0100)
			RLC	➔	
Case B	T301/ Q.931	↓	REL	➔	Cause Ind.: No answer from user (19), location public network serving remote user (0100)
				⬅	RLC
⇐ COMMUNICATION ⇒					
			⬅	REL	Cause Ind.: Normal call clearing (16), location user (0000)
			RLC	➔	

Test description (ISUP'92):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Make a speech call from Network C's UNI to Network B's UNI.
4. Check that notification is received at Network C's UNI.
5. Check that waiting call is released after Timer expiry.

6. Check that all network resources between Network B and Network C, and UNI C are released.
7. Check that the active call is still established.
8. Clear the active call from Network A's UNI.
9. Check that all resources are released.
10. Repeat the test for bearer 3.1 kHz audio.
11. Repeat steps 1-10 with Networks A and C interchanged.
12. Repeat steps 1-11 with Networks A and C in the role of Network B.

Test description (Comb):

1. Make a speech call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check the propriety of speech.
3. Make a speech call from Network C's (Q.767) UNI to Network B's UNI.
4. Check that waiting call is released after Timer expiry.
5. Check that all network resources between Network B and Network C, and UNI C are released.
6. Check that the active call is still established.
7. Clear the active call from Network A's UNI.
8. Check that all resources are released.
9. Repeat the test for bearer 3.1 kHz audio.
10. Repeat steps 1-9 with Networks A and C interchanged.

Test number: 2.11.1 **Ref.:** 2/Q.733, 2/Q.953.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Call Hold – Hold and Retrieve during waiting for ANM

Purpose: To verify that Call Hold can be initiated, a notification is transferred and the call can be retrieved.

Pre-test conditions: Arrange exchange data such that the requested Call Hold is supported at Network A's UNI.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
	CPG	➔	GenNot: Remote hold (1111001), Event Info: Progress (0000010)
	CPG	➔	GenNot: Remote retrieve (1111010), Event Info: Progress (0000010)
		←	ANM
⇐ COMMUNICATION ⇒			
	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Verify that Network B's UNI is alerted.
3. Initiate Call Hold from Network A's UNI.
4. Check that notification *remote hold* is received at Network B's UNI.
5. Check that call is in held state.
6. Initiate Retrieve from Network A's UNI.
7. Check that notification *remote retrieval* is received at Network B's UNI.
8. Check the propriety of speech.
9. Clear the call from Network A's UNI.
10. Check that all resources are released.
11. Repeat the test for bearer 3.1 kHz audio.
12. Repeat steps 1-11 with Networks A and B interchanged.

Test description (Comb):

1. Make a speech call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Verify that Network B's UNI is alerted.
3. Initiate Call Hold from Network A's UNI.
4. Check that call is in held state.
5. Initiate Retrieve from Network A's UNI.
6. Check the propriety of speech.
7. Clear the call from Network A's UNI.
8. Check that all resources are released.
9. Repeat the test for bearer 3.1 kHz audio.

Test number: 2.11.2 **Ref.:** 2/Q.733, 2/Q.953.

Config.: Multiple ISDN Accesses (See Figure 2)

Title: Call Hold – Hold call and clear before Retrieve during waiting for ANM

Purpose: To verify that the call can be released after hold is initiated and before it is retrieved.

Pre-test conditions: Arrange exchange data such that the requested Call Hold is supported at Network A's UNI.

Expected message sequence

Network A		Network B	
IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)	
COT	➔	<i>Optional message</i>	
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001)
CPG	➔	GenNot: Remote hold (1111001), Event Info: Progress (0000010)	
REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

Test description (ISUP'92):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Verify that Network B's UNI is alerted.
3. Initiate Call Hold from Network A's UNI.
4. Check that notification *remote hold* is received at Network B's UNI.
5. Check that call is in held state.
6. Clear the call from Network A's UNI.
7. Check that all resources are released.
8. Repeat the test for bearer 3.1 kHz audio.
9. Repeat steps 1-8 with Networks A and B interchanged.

Test description (Comb):

1. Make a speech call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Verify that Network B's UNI is alerted.
3. Initiate Call Hold from Network A's UNI.
4. Check that call is in held state.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for bearer 3.1 kHz audio.

Test number: 2.11.3 **Ref.:** 2/Q.733, 2/Q.953.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Call Hold – Hold and Retrieve during active phase

Purpose: To verify that Call Hold can be initiated, a notification is transferred and the call can be retrieved during active phase.

Pre-test conditions: Arrange exchange data such that the requested Call Hold is supported at Network A's and Network B's UNIs.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
Note	CPG	→	GenNot: Remote hold (1111001), Event Info: Progress (0000010)
	CPG	→	GenNot: Remote retrieve (1111010), Event Info: Progress (0000010)
⇐ COMMUNICATION ⇒			
		←	CPG GenNot: Remote hold (1111001), Event Info: Progress (0000010)
		←	CPG GenNot: Remote retrieve (1111010), Event Info: Progress (0000010)
⇐ COMMUNICATION ⇒			
Note	CPG	→	GenNot: Remote hold (1111001), Event Info: Progress (0000010)
		←	CPG GenNot: Remote hold (1111001), Event Info: Progress (0000010)
	CPG	→	GenNot: Remote retrieve (1111010), Event Info: Progress (0000010)
		←	CPG GenNot: Remote retrieve (1111010), Event Info: Progress (0000010)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

NOTE – Only relevant for ISUP'92 in both networks.

Test description (ISUP'92):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Initiate Call Hold from Network A's UNI.
4. Check that notification *remote hold* is received at Network B's UNI.

5. Check that call is in held state.
6. Initiate Retrieve from Network A's UNI.
7. Check that notification *remote retrieval* is received at Network B's UNI.
8. Check the propriety of speech.
9. Initiate Call Hold from Network B's UNI
10. Check that notification *remote hold* is received at Network A's UNI.
11. Check that call is in held state.
12. Initiate Retrieve from Network B's UNI.
13. Check that notification *remote retrieval* is received at Network A's UNI.
14. Check the propriety of speech.
15. Initiate Call Hold from Network A's UNI.
16. Initiate Call Hold from Network B's UNI.
17. Initiate Retrieve from Network A's UNI.
18. Check that the call is still in held state.
19. Initiate Retrieve from Network B's UNI.
20. Check the propriety of speech.
21. Clear the call from Network A's UNI.
22. Check that all resources are released.
23. Repeat the test for bearer 3.1 kHz audio.
24. Repeat steps 1-23 with Networks A and B interchanged.

Test description (Comb):

1. Make a speech call from Network A's (Q.767) UNI to Network B's (ISUP'92) UNI.
2. Check the propriety of speech.
3. Initiate Call Hold from Network B's UNI.
4. Check that call is in held state.
5. Initiate Retrieve from Network B's UNI.
6. Check the propriety of speech.
7. Clear the call from Network A's UNI.
8. Check that all resources are released.
9. Repeat the test for bearer 3.1 kHz audio.

Test number: 2.11.4 **Ref.:** 2/Q.733, 2/Q.953.

Config.: Multiple ISDN Accesses (See Figure 2)

Title: Call Hold – Hold during active phase; served user clears call during held state

Purpose: To verify that the call can be released in held state.

Pre-test conditions: Arrange exchange data such that the requested Call Hold is supported at Network A's UNI.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	➔	<i>Optional message</i>
Case a		⬅	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		⬅	ANM
Case b		⬅	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		⬅	CPG Event Info: alerting (0000001)
		⬅	ANM
⇐ COMMUNICATION ⇒			
	CPG	➔	GenNot: Remote hold (1111001), Event Info: Progress (0000010)
	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		⬅	RLC

Test description (ISUP'92):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Initiate Call Hold from Network A's UNI.
4. Check that notification remote hold is received at Network B's UNI.
5. Check that call is in held state.
6. Clear the call from Network A's UNI.
7. Check that all resources and are released.
8. Repeat the test for bearer 3.1 kHz audio.
9. Repeat steps 1-8 with Networks A and B interchanged.

Test description (Comb):

1. Make a speech call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Check the propriety of speech.
3. Initiate Call Hold from Network A's UNI.
4. Check that call is in held state.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for bearer 3.1 kHz audio.

Test number: 2.11.5 **Ref.:** 2/Q.733, 2/Q.953.

Config.: Multiple ISDN Accesses (See Figure 2)

Title: Call Hold – Hold during active phase; non-served user clears call during held state

Purpose: To verify that the call can be released in held state.

Pre-test conditions: Arrange exchange data such that the requested Call Hold is supported at Network A's UNI.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
	CPG	➔	GenNot: Remote hold (1111001), Event Info: Progress (0000010)
		←	REL Cause Ind.: Normal call clearing (16), location user (0000)
	RLC	➔	

Test description (ISUP'92):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Initiate Call Hold from Network A's UNI.
4. Check that notification remote hold is received at Network B's UNI.
5. Check that call is in held state.
6. Clear the call from Network B's UNI.
7. Check that all resources are released.
8. Repeat the test for bearer 3.1 kHz audio.
9. Repeat steps 1-8 with Networks A and B interchanged.

Test description (Comb):

1. Make a speech call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Check the propriety of speech.
3. Initiate Call Hold from Network A's UNI.
4. Check that call is in held state.
5. Clear the call from Network B's UNI.
6. Check that all resources are released.
7. Repeat the test for bearer 3.1 kHz audio.

Test number: 2.12.1 **Ref.:** 4/Q.733, 4/Q.953.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Terminal Portability – Successful

Purpose: To verify that Terminal Portability can be initiated on both sides; transportation of Suspend and Resume.

Pre-test conditions: Arrange exchange data such that the requested Terminal Portability is supported in both Networks.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
	SUS	→	Suspend/Resume Ind.: ISDN subscriber initiated (0)
	RES	→	Suspend/Resume Ind.: ISDN subscriber initiated (0)
⇐ COMMUNICATION ⇒			
		←	SUS Suspend/Resume Ind.: ISDN subscriber initiated (0)
		←	RES Suspend/Resume Ind.: ISDN subscriber initiated (0)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Initiate Suspend from Network A's UNI.
4. Check that Notification *remote user suspended* is received at Network B's UNI.
5. Initiate Resume from Network A's UNI.
6. Check that Notification *remote user resumed* is received at Network B's UNI.
7. Check the propriety of speech.

8. Initiate Suspend from Network B's UNI.
9. Check that Notification *remote user suspended* is received at Network A's UNI.
10. Initiate Resume from Network B's UNI.
11. Check that Notification *remote user resumed* is received at Network A's UNI.
12. Check the propriety of speech.
13. Clear the call from Network A's UNI.
14. Check that all resources are released.
15. Repeat the test for speech and 3.1 kHz audio bearers.
16. Repeat steps 1-15 with Networks A and B interchanged.

Test number: 2.12.2 **Ref.:** 4/Q.733, 4/Q.953.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: Terminal Portability – Unsuccessful, Timer expiry

Purpose: To verify that the call will be successfully released by the Network, if Timer T2 expired.

Pre-test conditions: Arrange exchange data such that the requested Terminal Portability is supported.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
	SUS	➔	Suspend/Resume Ind.: ISDN subscriber initiated (0)
	REL	➔	Cause Ind.: Recovery on Timer expiry (102), location public network serving remote user (0100)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Initiate Suspend from Network A's UNI.
4. Check that Notification *remote user suspended* is received at Network B's UNI.
5. Check that call is released after Timer T2 expired.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and B interchanged.

Test number: 2.13.1 **Ref.:** 1/Q.734, 1/Q.954.

Config.: Multiple ISDN Accesses (See Figure 5)

Title: Conference Calling – Establishment of a conference and termination of the conference

Purpose: To verify that a conference can be established and terminated by the served user.

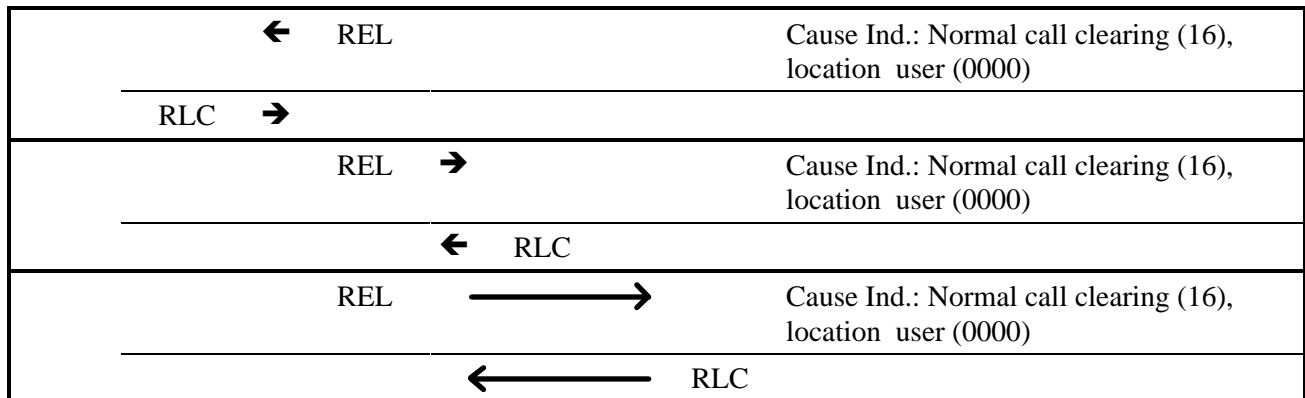
Pre-test conditions:

1. Arrange exchange data such that the requested Conference Calling Supplementary Service is supported at Network B.
2. Floating is not allowed.

Expected message sequence

Network A	Network B	Network C	Network D
<div> <div>← IAM</div> <div>ACM →</div> <div>ANM →</div> </div>			
Simplified call establishment			
⇐ COMMUNICATION ⇒			
<div> <div>← CPG</div> <div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div> </div>			
<div> <div>IAM →</div> <div>← ACM</div> <div>← ANM</div> </div>			
Simplified call establishment			
<div> <div>CPG →</div> <div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div> </div>			
<div> <div>← CPG</div> <div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div> </div>			
⇐ CONFERENCE COMMUNICATION ⇒			
<div> <div>IAM →</div> <div>← ACM</div> <div>← ANM</div> </div>			
Simplified call establishment			
<div> <div>CPG →</div> <div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div> </div>			
<div> <div>← CPG</div> <div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div> </div>			
<div> <div>CPG →</div> <div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div> </div>			

⇐ CONFERENCE COMMUNICATION ⇒



Test description (ISUP'92):

1. Make a speech call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Check that notification *conference established* is received at Network A's UNI.
5. Make a speech call from Network B's UNI to Network C's UNI.
6. Request to add a new conferee to the conference.
7. Check that notification *conference established* is received at Network C's UNI.
8. Check that notification *other party added* is received at Network A's UNI.
9. Check the propriety of speech for the whole conference.
10. Make a speech call from Network B's UNI to Network D's UNI.
11. Request to add a new conferee to the conference.
12. Check that notification *conference established* is received at Network D's UNI.
13. Check that notification *other party added* is received at Network A's UNI and Network C's UNI.
14. Check the propriety of speech for the whole conference.
15. Other parties may be added in the same way until the maximum number of conferees is reached.
16. Request the termination of the whole conference.
17. Check that no notifications are sent to either terminal.
18. Check that all resources are released.
19. Repeat the test for bearer 3.1 kHz audio.
20. Repeat steps 1-19 with Networks A, C and D interchanged.
21. Repeat steps 1-20 with Networks A, C and D in the role of Network B.

Test description (Comb):

1. Make a speech call from Network B's (ISUP'92) UNI to Network A's (Q.767) UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Make a speech call from Network B's UNI to Network C's (Q.767) UNI.
5. Request to add a new conferee to the conference.
6. Check the propriety of speech for the whole conference.
7. Make a speech call from Network B's UNI to Network D's (Q.767) UNI.
8. Request to add a new conferee to the conference.
9. Check the propriety of speech for the whole conference.
10. Other parties may be added in the same way until the maximum number of conferees is reached.
11. Request the termination of the whole conference.
12. Check that no notifications are sent to either terminal.
13. Check that all resources are released.
14. Repeat the test for bearer 3.1 kHz audio.
15. Repeat steps 1-14 with Networks A, C and D interchanged.

Test number: 2.13.2 **Ref.:** 1/Q.734, 1/Q.954.

Config.: Multiple ISDN Accesses (See Figure 5)

Title: Conference Calling – Isolation, Reattachement and Disconnection of one party of the conference

Purpose: To verify that one party can be isolated and reattached and that one party can be disconnected by the served user.

Pre-test conditions: Arrange exchange data such that the requested Conference Calling Supplementary Service is supported at Network B.

Expected message sequence

Network A	Network B	Network C	Network D
<div><div>←IAM</div><div>ACM→</div><div>ANM→</div></div>			Simplified call establishment
⇐COMMUNICATION⇒			
<div><div>←CPG</div><div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div></div>			
<div><div>IAM→</div><div>←ACM</div><div>←ANM</div></div>			Simplified call establishment
<div><div>CPG→</div><div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div></div>			
<div><div>←CPG</div><div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div></div>			
⇐CONFERENCE COMMUNICATION⇒			
<div><div>IAM→</div><div>←ACM</div><div>←ANM</div></div>			Simplified call establishment
<div><div>CPG→</div><div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div></div>			
<div><div>←CPG</div><div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div></div>			
<div><div>CPG→</div><div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div></div>			Simplified call establishment
⇐CONFERENCE COMMUNICATION⇒			
<div><div>←CPG</div><div>GenNot: isolated (1000101), Event Info: Progress (0000010)</div></div>			
<div><div>CPG→</div><div>GenNot: Other party isolated (1000111), Event Info: Progress (0000010)</div></div>			Simplified call establishment
<div><div>CPG→</div><div>GenNot: Other party isolated (1000111), Event Info: Progress (0000010)</div></div>			

Network A Network B Network C Network D

⇐ CONFERENCE COMMUNICATION ⇒

← CPG	GenNot: reattached (1000110), Event Info: Progress (0000010)
CPG →	GenNot: Other party reattached (1001000), Event Info: Progress (0000010)
CPG →	GenNot: Other party reattached (1001000), Event Info: Progress (0000010)

⇐ CONFERENCE COMMUNICATION ⇒

← REL	Cause Ind.: Normal call clearing (16), location user (0000)
RLC →	
CPG →	GenNot: Other party disconnected (1001010), Event Info: Progress (0000010)
CPG →	GenNot: Other party disconnected (1001010), Event Info: Progress (0000010)

⇐ CONFERENCE COMMUNICATION ⇒

REL →	Cause Ind.: Normal call clearing (16), location user (0000)
← RLC	
REL →	Cause Ind.: Normal call clearing (16), location user (0000)
← RLC	

Test description (ISUP'92):

1. Make a speech call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Check that notification *conference established* is received at Network A's UNI.
5. Make a speech call from Network B's UNI to Network C's UNI.
6. Request to add a new conferee to the conference.
7. Check that notification *conference established* is received at Network C's UNI.
8. Check that notification *other party added* is received at Network A's UNI.
9. Check the propriety of speech for the whole conference.
10. Make a speech call from Network B's UNI to Network D's UNI.
11. Request to add a new conferee to the conference.
12. Check that notification *conference established* is received at Network D's UNI.
13. Check that notification *other party added* is received at Network A's UNI and Network C's UNI.
14. Check the propriety of speech for the whole conference.
15. Request the isolation of Network A's UNI.
16. Check that notification *isolated* is received at Network A's UNI.

17. Check that notification *other party isolated* is received at Network C's UNI and Network D's UNI.
18. Check that no communication in either direction is possible at Network A's UNI.
19. Request the reattaching of Network A's UNI.
20. Check that notification *reattached* is received at Network A's UNI.
21. Check that notification *other party reattached* is received at Network C's UNI and Network D's UNI.
22. Check that communication for Network A's UNI is possible in either direction.
23. Clear the call to Network A's UNI from Network B's UNI.
24. Check that notification *other party disconnected* is received at Network C's UNI and Network D's UNI.
25. Check that the conference is still established.
26. Terminate the conference.
27. Check that all resources are released.
28. Repeat the test for bearer 3.1 kHz audio.
29. Repeat steps 1-28 with Networks A, C and D interchanged.
30. Repeat steps 1-29 with Networks A, C and D in the role of Network B.

Test description (Comb):

1. Make a 64 kbit/s call from Network B's (ISUP'92) UNI to Network A's (Q.767) UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Make a speech call from Network B's UNI to Network C's (Q.767) UNI.
5. Request to add a new conferee to the conference.
6. Check the propriety of speech for the whole conference.
7. Make a speech call from Network B's UNI to Network D's (Q.767) UNI.
8. Request to add a new conferee to the conference.
9. Check the propriety of speech for the whole conference.
10. Request the isolation of Network A's UNI.
11. Check that no communication in either direction is possible at Network A's UNI.
12. Request the reattaching of Network A's UNI.
13. Check that communication for Network A's UNI is possible in either direction.
14. Clear the call to Network A's UNI from Network B's UNI.
15. Check that the conference is still established.
16. Terminate the conference.
17. Check that all resources are released.
18. Repeat the test for bearer 3.1 kHz audio.
19. Repeat steps 1-18 with Networks A, C and D interchanged.

Test number: 2.13.3 **Ref.:** 1/Q.734, 1/Q.954.

Config.: Multiple ISDN Accesses (See Figure 5)

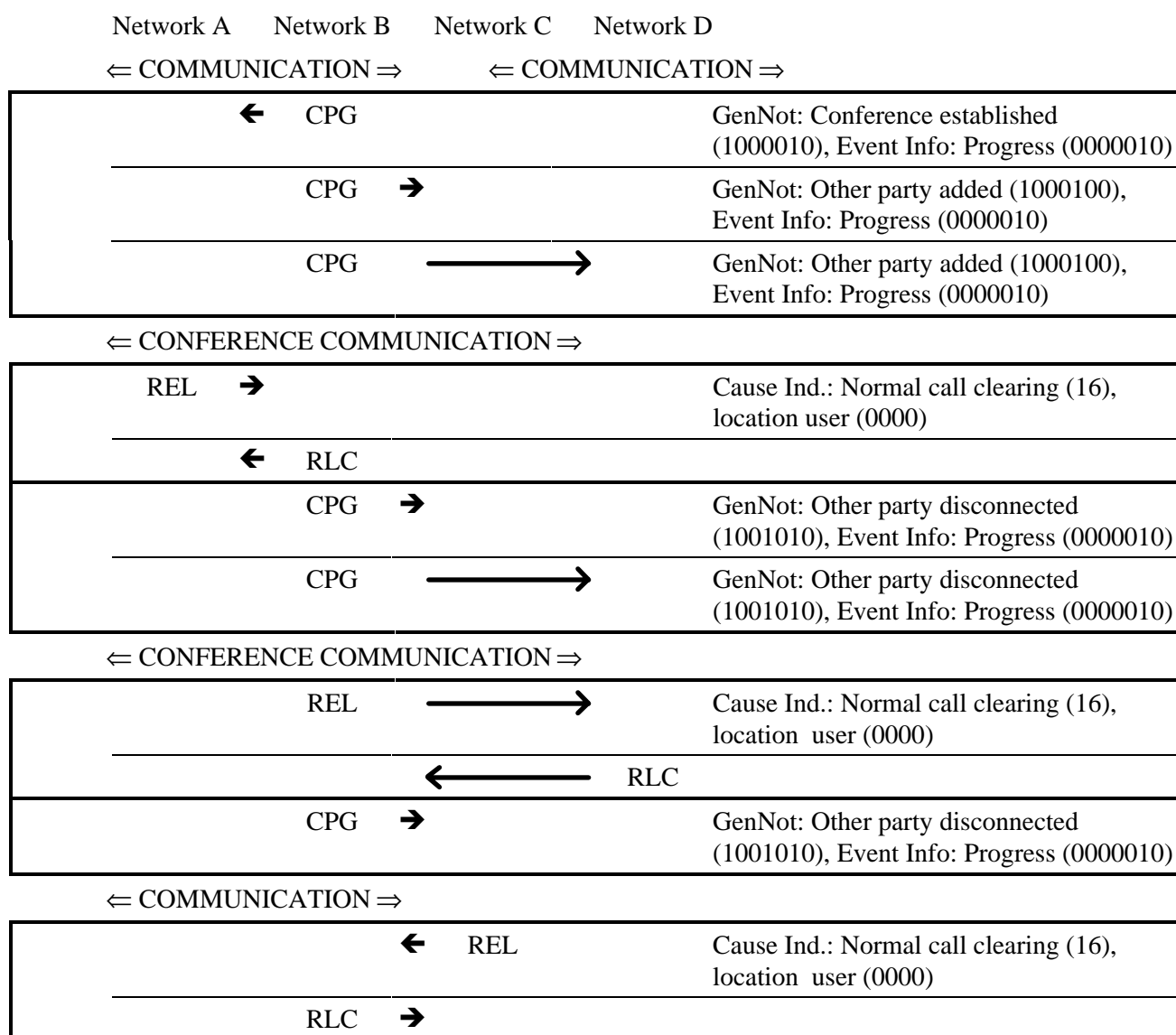
Title: Conference Calling – Splitting and Adding of a party

Purpose: To verify that one party can be split and added.

Pre-test conditions: Arrange exchange data such that the requested Conference Calling Supplementary Service is supported at Network B.

Expected message sequence

Network A	Network B	Network C	Network D
<div> <div>← IAM</div> <div>ACM →</div> <div>ANM →</div> </div>			
Simplified call establishment			
⇐ COMMUNICATION ⇒			
<div> <div>← CPG</div> <div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div> </div>			
<div> <div>IAM →</div> <div>← ACM</div> <div>← ANM</div> </div>			
Simplified call establishment			
<div> <div>CPG →</div> <div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div> </div>			
<div> <div>← CPG</div> <div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div> </div>			
⇐ CONFERENCE COMMUNICATION ⇒			
<div> <div>IAM →</div> <div>← ACM</div> <div>← ANM</div> </div>			
Simplified call establishment			
<div> <div>CPG →</div> <div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div> </div>			
<div> <div>← CPG</div> <div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div> </div>			
<div> <div>CPG →</div> <div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div> </div>			
⇐ CONFERENCE COMMUNICATION ⇒			
<div> <div>← CPG</div> <div>GenNot: conference disconnected (1000011), Event Info: Progress (0000010)</div> </div>			
<div> <div>CPG →</div> <div>GenNot: Other party split (1001001), Event Info: Progress (0000010)</div> </div>			
<div> <div>CPG →</div> <div>GenNot: Other party split (1001001), Event Info: Progress (0000010)</div> </div>			



Test description (ISUP'92):

1. Make a speech call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Check that notification *conference established* is received at Network A's UNI.
5. Make a speech call from Network B's UNI to Network C's UNI.
6. Request to add a new conferee to the conference.
7. Check that notification *conference established* is received at Network C's UNI.
8. Check that notification *other party added* is received at Network A's UNI.
9. Check the propriety of speech for the whole conference.
10. Make a speech call from Network B's UNI to Network D's UNI.
11. Request to add a new conferee to the conference.
12. Check that notification *conference established* is received at Network D's UNI.
13. Check that notification *other party added* is received at Network A's UNI and Network C's UNI.
14. Check the propriety of speech for the whole conference.

15. Request the splitting of Network A's UNI.
16. Check that notification *conference disconnected* is received at Network A's UNI.
17. Check that notification *other party split* is received at Network C's UNI and Network D's UNI.
18. Check that private communication between Network A's UNI and Network B's UNI is possible.
19. Check that a conference call between Network C's UNI and Network D's UNI is possible.
20. Request the reattaching of Network A's UNI and Network B's UNI.
21. Check that notification *conference established* is received at Network A's UNI.
22. Check that notification *other party added* is received at Network C's UNI and Network D's UNI.
23. Check that communication within the whole conference is possible.
24. Clear the call from Network A's UNI.
25. Check that notification *other party disconnected* is received at Network C's UNI and Network D's UNI.
26. Check that the conference is still established.
27. Clear the call from Network B's UNI to Network D's UNI.
28. Check that notification *other party disconnected* is received at Network C's UNI.
29. Check that the conference is still established.
30. Clear the call from Network C's UNI.
31. Check that all resources are released.
32. Repeat the test for bearer 3.1 kHz audio.
33. Repeat steps 1-32 with the Networks A, C and D interchanged.
34. Repeat steps 1-33 with Networks A, C and D in the role of Network B.

Test description (Comb):

1. Make a 64 kbit/s call from Network B's (ISUP'92) UNI to Network A's (Q.767) UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Make a speech call from Network B's UNI to Network C's (Q.767) UNI.
5. Request to add a new conferee to the conference.
6. Check the propriety of speech for the whole conference.
7. Make a speech call from Network B's UNI to Network D's (Q.767) UNI.
8. Request to add a new conferee to the conference.
9. Check the propriety of speech for the whole conference.
10. Request the splitting of Network A's UNI.
11. Check that private communication between Network A's UNI and Network B's UNI is possible.
12. Check that a conference call between Network C's UNI and Network D's UNI is possible.
13. Request the reattaching of Network A's UNI and Network B's UNI.
14. Check that communication within the whole conference is possible.

15. Clear the call from Network A's UNI.
16. Check that the conference is still established.
17. Clear the call from Network B's UNI to Network D's UNI.
18. Check that the conference is still established.
19. Clear the call from Network C's UNI.
20. Check that all resources and are released.
21. Repeat the test for bearer 3.1 kHz audio.
22. Repeat steps 1-21 with Networks A, C and D interchanged.

Test number: 2.13.4 **Ref.:** 1/Q.734, 1/Q.954.

Config.: Multiple ISDN Accesses (See Figure 5)

Title: Conference Calling – Floating of a conference (explicit request)

Purpose: To verify that it is possible to disconnect the served user.

Pre-test conditions:

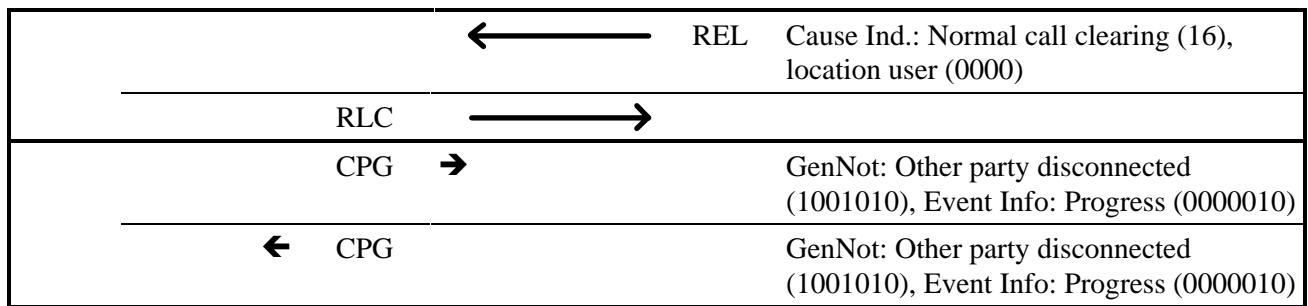
1. Arrange exchange data such that the requested Conference Calling Supplementary Service is supported at Network B.
2. Floating is allowed.

Expected message sequence

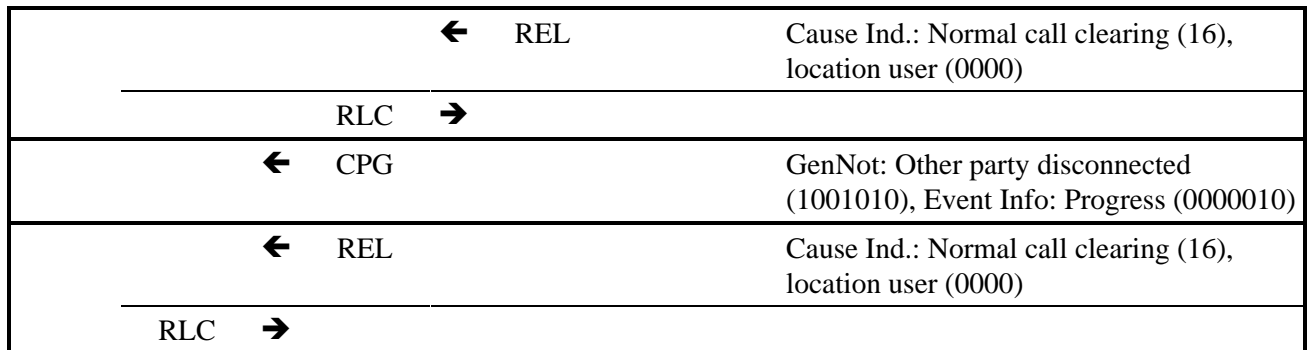
Network A	Network B	Network C	Network D
<div><div>←IAM</div><div>ACM→</div><div>ANM→</div></div>			Simplified call establishment
⇐COMMUNICATION⇒			
<div><div>←CPG</div><div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div></div>			
<div><div>IAM→</div><div>←ACM</div><div>←ANM</div></div>			Simplified call establishment
<div><div>CPG→</div><div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div></div>			
<div><div>←CPG</div><div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div></div>			
⇐CONFERENCE COMMUNICATION⇒			
<div><div>IAM→</div><div>←ACM</div><div>←ANM</div></div>			Simplified call establishment
<div><div>CPG→</div><div>GenNot: Conference established (1000010), Event Info: Progress (0000010)</div></div>			
<div><div>←CPG</div><div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div></div>			
<div><div>CPG→</div><div>GenNot: Other party added (1000100), Event Info: Progress (0000010)</div></div>			Simplified call establishment
⇐CONFERENCE COMMUNICATION⇒			
<div><div>←CPG</div><div>GenNot: conference floating (1001011), Event Info: Progress (0000010)</div></div>			
<div><div>CPG→</div><div>GenNot: conference floating (1001011), Event Info: Progress (0000010)</div></div>			Simplified call establishment
<div><div>CPG→</div><div>GenNot: conference floating (1001011), Event Info: Progress (0000010)</div></div>			

Network A Network B Network C Network D

⇐ CONFERENCE COMMUNICATION ⇒



⇐ CONFERENCE COMMUNICATION ⇒



Test description (ISUP'92):

1. Make a speech call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Check that notification *conference established* is received at Network A's UNI.
5. Make a speech call from Network B's UNI to Network C's UNI.
6. Request to add a new conferee to the conference.
7. Check that notification *conference established* is received at Network C's UNI.
8. Check that notification *other party added* is received at Network A's UNI.
9. Check the propriety of speech for the whole conference.
10. Make a speech call from Network B's UNI to Network D's UNI.
11. Request to add a new conferee to the conference.
12. Check that notification *conference established* is received at Network D's UNI.
13. Check that notification *other party added* is received at Network A's UNI and Network C's UNI.
14. Check the propriety of speech for the whole conference.
15. Network B's UNI invokes floating.
16. Check that notification *conference floating* is received at Networks A's, C's and D's UNI.
17. Check that all network resources between Network B's UNI and the conference bridge are released.
18. Check that communication within the conference is possible.
19. Clear the call from Network D's UNI.

20. Check that notification *other party disconnected* is received at Network A's UNI and Network C's UNI.
21. Check that the conference is still established.
22. Clear the call from Network C's UNI.
23. Check that notification *other party disconnected* is received at Network A's UNI.
24. Check that the originating local switch clears the call between Network A's UNI and the conference bridge.
25. Check that all resources are released.
26. Repeat the test for bearer 3.1 kHz audio.
27. Repeat steps 1-26 with Networks A, C and D interchanged.
28. Repeat steps 1-27 with Networks A, C and D in the role of Network B.

Test description (Comb):

1. Make a 64 kbit/s call from Network B's (ISUP'92) UNI to Network A's (Q.767) UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Make a speech call from Network B's UNI to Network C's (Q.767) UNI.
5. Request to add a new conferee to the conference.
6. Check the propriety of speech for the whole conference.
7. Make a speech call from Network B's UNI to Network D's (Q.767) UNI.
8. Request to add a new conferee to the conference.
9. Check the propriety of speech for the whole conference.
10. Network B's UNI invokes floating.
11. Check that all network resources between Network B's UNI and the conference bridge are released.
12. Check that communication within the conference is possible.
13. Clear the call from Network D's UNI.
14. Check that the conference is still established.
15. Clear the call from Network C's UNI.
16. Check that the originating local switch clears the call between Network A's UNI and the conference bridge.
17. Check that all resources are released.
18. Repeat the test for bearer 3.1 kHz audio.
19. Repeat steps 1-18 with Networks A, C and D interchanged.

Test number: 2.13.5 **Ref.:** 1/Q.734, 1/Q.954.

Config.: Multiple ISDN Accesses (See Figure 5)

Title: Conference Calling – Call clearing by served user when floating is allowed

Purpose: To verify that floating is possible after clearing by served user.

Pre-test conditions: 1. Arrange exchange data such that the requested Conference Calling Supplementary Service is supported at Network B.

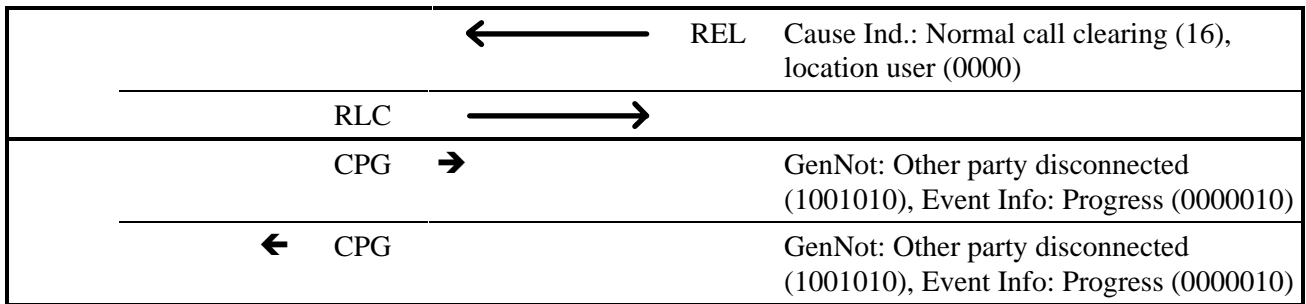
2. Floating is allowed.

Expected message sequence

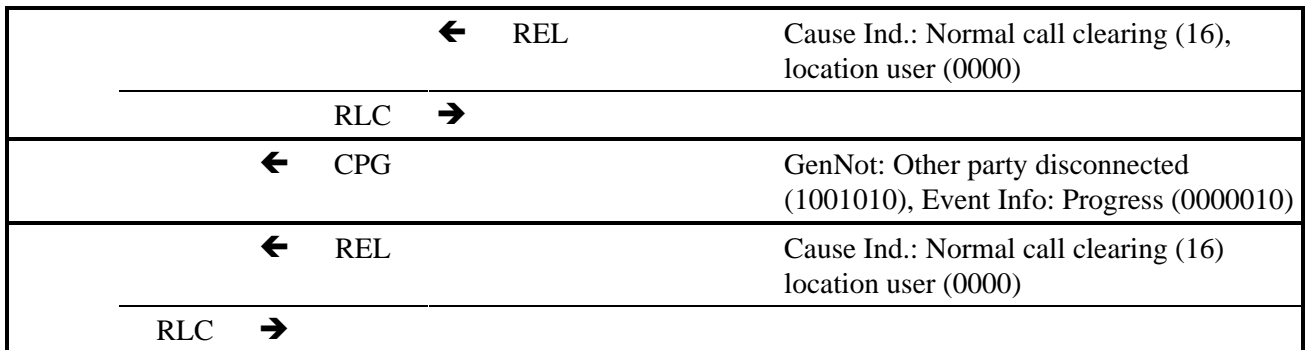
Network A	Network B	Network C	Network D
<div>← IAM</div>			Simplified call establishment
<div>ACM →</div>			
<div>ANM →</div>			
⇐ COMMUNICATION ⇒			
<div>← CPG</div>			GenNot: Conference established (1000010), Event Info: Progress (0000010)
<div>IAM →</div>			Simplified call establishment
<div>← ACM</div>			
<div>← ANM</div>			
<div>CPG →</div>			GenNot: Conference established (1000010), Event Info: Progress (0000010)
<div>← CPG</div>			GenNot: Other party added (1000100), Event Info: Progress (0000010)
⇐ CONFERENCE COMMUNICATION ⇒			
<div>IAM →</div>			Simplified call establishment
<div>← ACM</div>			
<div>← ANM</div>			
<div>CPG →</div>			GenNot: Conference established (1000010), Event Info: Progress (0000010)
<div>← CPG</div>			GenNot: Other party added (1000100), Event Info: Progress (0000010)
<div>CPG →</div>			GenNot: Other party added (1000100), Event Info: Progress (0000010)
⇐ CONFERENCE COMMUNICATION ⇒			
<div>← CPG</div>			GenNot: conference floating (1001011), Event Info: Progress (0000010)
<div>CPG →</div>			GenNot: conference floating (1001011), Event Info: Progress (0000010)
<div>CPG →</div>			GenNot: conference floating (1001011), Event Info: Progress (0000010)

Network A Network B Network C Network D

⇐ CONFERENCE COMMUNICATION ⇒



⇐ CONFERENCE COMMUNICATION ⇒



Test description (ISUP'92):

1. Make a speech call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Check that notification *conference established* is received at Network A's UNI.
5. Make a speech call from Network B's UNI to Network C's UNI.
6. Request to add a new conferee to the conference.
7. Check that notification *conference established* is received at Network C's UNI.
8. Check that notification *other party added* is received at Network A's UNI.
9. Check the propriety of speech for the whole conference.
10. Make a speech call from Network B's UNI to Network D's UNI.
11. Request to add a new conferee to the conference.
12. Check that notification *conference established* is received at Network D's UNI.
13. Check that notification *other party added* is received at Network A's UNI and Network C's UNI.
14. Check the propriety of speech for the whole conference.
15. The served user clears the call.
16. Check that conference is floating.
17. Check that notification *conference floating* is received at Networks A's, C's and D's UNI.
18. Check that all network resources between Network B's UNI and the conference bridge are released.
19. Check that communication within the conference is possible.
20. Clear the call from Network D's UNI.

21. Check that notification *other party disconnected* is received at Network A's UNI and Network C's UNI.
22. Check that the conference is still established.
23. Clear the call from Network C's UNI.
24. Check that notification *other party disconnected* is received at Network A's UNI.
25. Check that the originating local switch clears the call between Network A's UNI and the conference bridge.
26. Check that all resources are released.
27. Repeat the test for bearer 3.1 kHz audio.
28. Repeat steps 1-27 with Networks A, C and D interchanged.
29. Repeat steps 1-28 with Networks A, C and D in the role of Network B.

Test description (Comb):

1. Make a 64 kbit/s call from Network B's (ISUP'92) UNI to Network A's (Q.767) UNI.
2. Check the propriety of speech.
3. Request a conference at Network B's UNI.
4. Make a speech call from Network B's UNI to Network C's (Q.767) UNI.
5. Request to add a new conferee to the conference.
6. Check the propriety of speech for the whole conference.
7. Make a speech call from Network B's UNI to Network D's (Q.767) UNI.
8. Request to add a new conferee to the conference.
9. Check the propriety of speech for the whole conference.
10. The served user clears the call.
11. Check that conference is floating.
12. Check that all network resources between Network B's UNI and the conference bridge are released.
13. Check that communication within the conference is possible.
14. Clear the call from Network D's UNI.
15. Check that the conference is still established.
16. Clear the call from Network C's UNI.
17. Check that the originating local switch clears the call between Network A's UNI and the conference bridge.
18. Check that all resources are released.
19. Repeat the test for bearer 3.1 kHz audio.
20. Repeat steps 1-19 with Networks A, C and D interchanged.

Test number: 2.14.1 **Ref.:** 2/Q.734, 2/Q.954.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Three-party service – Invocation and splitting of a Three-party conversation

Purpose: To verify that a Three-party conversation can be invoked and split.

Pre-test conditions: Arrange the exchange data such that the requested Three-party service is supported at Network B.

Expected message sequence

Network A	Network B	Network C
<div>← IAM</div>		Simplified call establishment
ACM →		
ANM →		
⇐ COMMUNICATION ⇒		
<div>← CPG</div>		GenNot: Remote hold (1111001), Event Info: Progress (0000010)
<div>IAM →</div>		Simplified call establishment
<div>← ACM</div>		
<div>← ANM</div>		
⇐ COMMUNICATION ⇒		
<div>CPG →</div>		GenNot: Conference established (1000010), Event Info: Progress (0000010)
<div>← CPG</div>		GenNot: Conference established (1000010), Event Info: Progress (0000010)
⇐ Three-Party COMMUNICATION ⇒		
<div>CPG →</div>		GenNot: Conference disconnected (1000011), Event Info: Progress (0000010)
<div>← CPG</div>		GenNot: Conference disconnected (1000011), Event Info: Progress (0000010)
⇐ COMMUNICATION ⇒		
<div>REL →</div>		Cause Ind.: Normal call clearing (16), location user (0000)
<div>← RLC</div>		
<div>← CPG</div>		GenNot: Remote retrieval (1111010), Event Info: Progress (0000010)
⇐ COMMUNICATION ⇒		
<div>← REL</div>		Cause Ind.: Normal call clearing (16), location user (0000)
<div>RLC →</div>		

Test description (ISUP'92):

1. Make a speech call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Initiate Call Hold at Network B's UNI.
4. Check that notification *remote hold* is received at Network A's UNI.
5. Check that call is in held state.
6. Make a speech call from Network B's UNI to Network C's UNI.
7. Check the propriety of speech.
8. Establish Three-Party communication.
9. Check that notification *conference established* is received at Network A's UNI and Network C's UNI.
10. Check the propriety of the Three-Party communication.
11. Split the Three-Party communication.
12. Check that notification *conference disconnected* is received at Network A's UNI and Network C's UNI.
13. Check that call between Network A's UNI and Network B's UNI is in held state.
14. Check the propriety of speech between Network B's UNI and Network C's UNI.
15. Clear the active call from Network B's UNI.
16. Check that all resources between UNI B and UNI C are released.
17. Initiate call retrieval from Network B's UNI.
18. Check that notification *remote retrieval* is received at Network A's UNI.
19. Check the propriety of speech.
20. Clear the call from Network B's UNI.
21. Check that all resources are released.
22. Repeat the test for bearer 3.1 kHz audio.
23. Repeat steps 1-22 with Networks A and C interchanged.
24. Repeat steps 1-23 with Networks A and C in the role of Network B.

Test description (Comb):

1. Make a speech call from Network B's (ISUP'92) UNI to Network A's (Q.767) UNI.
2. Check the propriety of speech.
3. Initiate Call Hold at Network B's UNI.
4. Check that call is in held state.
5. Make a speech call from Network B's UNI to Network C's (Q.767) UNI.
6. Check the propriety of speech.
7. Establish Three-Party communication from Network B's UNI.
8. Check the propriety of the Three-Party communication.
9. Split the Three-Party communication.
10. Check that the call between Network A's UNI and Network B's UNI is in held state.
11. Check the propriety of speech between Network B's UNI and Network C's UNI.
12. Clear the active call from Network B's UNI.

13. Check that all resources between UNI B and UNI C are released.
14. Initiate call retrieval from Network B's UNI.
15. Check the propriety of speech.
16. Clear the call from Network B's UNI.
17. Check that all resources are released.
18. Repeat the test for bearer 3.1 kHz audio.
19. Repeat steps 1-18 with Networks A and C interchanged.

Test number: 2.14.2 **Ref.:** 2/Q.734, 2/Q.954.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Three-party service – Served user disconnects one of the remote users

Purpose: To verify that a Three-party conversation can be invoked and the served user can disconnect one of the remote users during Three-Party communication.

Pre-test conditions: Arrange the exchange data such that the requested Three-party service is supported at Network B.

Expected message sequence

Network A	Network B	Network C
← IAM		Simplified call establishment
ACM →		
ANM →		
⇐ COMMUNICATION ⇒		
← CPG		GenNot: Remote hold (1111001), Event Info: Progress (0000010)
IAM →		Simplified call establishment
← ACM		
← ANM		
⇐ COMMUNICATION ⇒		
CPG →		GenNot: Conference established (1000010), Event Info: Progress (0000010)
← CPG		GenNot: Conference established (1000010), Event Info: Progress (0000010)
⇐ Three-Party COMMUNICATION ⇒		
REL →		Cause Ind.: Normal call clearing (16), location user (0000)
← RLC		
← CPG		GenNot: Conference disconnected (1000011), Event Info: Progress (0000010)
← CPG		GenNot: Remote retrieval (1111010), Event Info: Progress (0000010)
⇐ COMMUNICATION ⇒		
← REL		Cause Ind.: Normal call clearing (16), location user (0000)
RLC →		

Test description (ISUP'92):

1. Make a speech call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Initiate Call Hold at Network B's UNI.
4. Check that notification *remote hold* is received at Network A's UNI.

5. Check that call is in held state.
6. Make a speech call from Network B's UNI to Network C's UNI.
7. Check the propriety of speech.
8. Establish Three-Party communication.
9. Check that notification *conference established* is received at Network A's UNI and Network C's UNI.
10. Check the propriety of the Three-Party communication.
11. Clear the call between Network B's UNI and Network C's UNI from Network B's UNI.
12. Check that all resources between UNI B and UNI C are released.
13. Check that notification *conference disconnected* is received at Network A's UNI.
14. Retrieve call from Network B's UNI.
15. Check that notification *remote retrieval* is received at Network A's UNI.
16. Check the propriety of speech.
17. Clear the call between Network B's UNI and Network A's UNI.
18. Check that all resources are released.
19. Repeat the test for bearer 3.1 kHz audio.
20. Repeat steps 1-19 with Networks A and C interchanged.
21. Repeat steps 1-20 with Networks A and C in the role of Network B.

Test description (Comb):

1. Make a speech call from Network B's (ISUP'92) UNI to Network A's (Q.767) UNI.
2. Check the propriety of speech.
3. Initiate Call Hold at Network B's UNI.
4. Check that call is in held state.
5. Make a speech call from Network B's UNI to Network C's (Q.767) UNI.
6. Check the propriety of speech.
7. Establish Three-Party communication from Network B's UNI.
8. Check the propriety of the Three-Party communication.
9. Clear the call between Network B's UNI and Network C's UNI from Network B's UNI.
10. Check that all resources between UNI B and UNI C are released.
11. Retrieve call from Network B's UNI.
12. Check the propriety of speech.
13. Clear the call between Network B's UNI and Network A's UNI.
14. Check that all resources are released.
15. Repeat the test for bearer 3.1 kHz audio.
16. Repeat steps 1-15 with Networks A and C interchanged.

Test number: 2.14.3 **Ref.:** 2/Q.734, 2/Q.954.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Three-party service – Disconnect sent by one of the remote users

Purpose: To verify that a Three-party conversation can be invoked and one remote user sends disconnect during Three-Party communication.

Pre-test conditions: Arrange the exchange data such that the requested Three-party service is supported at Network B.

Expected message sequence

Network A	Network B	Network C
<div><div>←IAM</div><div>ACM→</div><div>ANM→</div></div>		Simplified call establishment
⇐COMMUNICATION⇒		
<div><div>←CPG</div></div>		
<div><div>IAM→</div><div>←ACM</div><div>←ANM</div></div>		Simplified call establishment
⇐COMMUNICATION⇒		
<div><div>CPG→</div><div>←CPG</div></div>		
⇐Three-Party COMMUNICATION⇒		
<div><div>REL→</div><div>←RLC</div></div>		Cause Ind.: Normal call clearing (16), location user (0000)
<div><div>CPG→</div></div>		GenNot: Conference disconnected (1000011), Event Info: Progress (0000010)
⇐COMMUNICATION⇒		
<div><div>REL→</div><div>←RLC</div></div>		Cause Ind.: Normal call clearing (16), location user (0000)

Test description (ISUP'92):

1. Make a speech call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Initiate Call Hold at Network B's UNI.
4. Check that notification *remote hold* is received at Network A's UNI.
5. Check that call is in held state.
6. Make a speech call from Network B's UNI to Network C's UNI.

7. Check the propriety of speech.
8. Establish Three-Party communication.
9. Check that notification *conference established* is received at Network A's UNI and Network C's UNI.
10. Check the propriety of the Three-Party communication.
11. Clear the call between Network B's UNI and Network A's UNI from Network A's UNI.
12. Check that all resources between UNI A and UNI B are released.
13. Check that notification *conference disconnected* is received at Network C's UNI.
14. Check the propriety of speech.
15. Clear the call between Network B's UNI and Network C's UNI.
16. Check that all resources are released.
17. Repeat the test for bearer 3.1 kHz audio.
18. Repeat steps 1-17 with Networks A and C interchanged.
19. Repeat steps 1-18 with Networks A and C in the role of Network B.

Test description (Comb):

1. Make a speech call from Network B's (ISUP'92) UNI to Network A's (Q.767) UNI.
2. Check the propriety of speech.
3. Initiate Call Hold at Network B's UNI.
4. Check that call is in held state.
5. Make a speech call from Network B's UNI to Network C's (Q.767) UNI.
6. Check the propriety of speech.
7. Establish Three-Party communication from Network B's UNI.
8. Check the propriety of the Three-Party communication.
9. Clear the call between Network B's UNI and Network A's UNI from Network A's UNI.
10. Check that all resources between UNI A and UNI B are released.
11. Check the propriety of speech.
12. Clear the call between Network B's UNI and Network C's UNI.
13. Check that all resources are released.
14. Repeat the test for bearer 3.1 kHz audio.
15. Repeat steps 1-14 with Networks A and C interchanged.

Test number: 2.14.4 **Ref.:** 2/Q.734, 2/Q.953.

Config.: Multiple ISDN Accesses (See Figure 4)

Title: Three-party service – Disconnect of the entire call

Purpose: To verify that a Three-party conversation can be invoked and the entire call can be disconnected.

Pre-test conditions: Arrange the exchange data such that the requested Three-party service is supported at Network B.

Expected message sequence

Network A	Network B	Network C
← IAM		Simplified call establishment
ACM →		
ANM →		
⇐ COMMUNICATION ⇒		
← CPG		GenNot: Remote hold (1111001), Event Info: Progress (0000010)
IAM →		Simplified call establishment
← ACM		
← ANM		
⇐ COMMUNICATION ⇒		
CPG →		GenNot: Conference established (1000010), Event Info: Progress (0000010)
← CPG		GenNot: Conference established (1000010), Event Info: Progress (0000010)
⇐ Three-Party COMMUNICATION ⇒		
Case a	← REL	Cause Ind.: Normal call clearing (16), location user (0000)
	RLC →	
	CPG →	GenNot: Conference disconnected (1000011), Event Info: Progress (0000010)
	REL →	Cause Ind.: Normal call clearing (16), location user (0000)
	← RLC	
Case b	REL →	Cause Ind.: Normal call clearing (16), location user (0000)
	← RLC	
	← CPG	GenNot: Conference disconnected (1000011), Event Info: Progress (0000010)
	← REL	Cause Ind.: Normal call clearing (16), location user (0000)
	RLC →	

Test description (ISUP'92):

1. Make a speech call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Initiate Call Hold at Network B's UNI.
4. Check that notification *remote hold* is received at Network A's UNI.
5. Check that call is in held state.
6. Make a speech call from Network B's UNI to Network C's UNI.
7. Check the propriety of speech.
8. Establish Three-Party communication.
9. Check that notification *conference established* is received at Network A's UNI and Network C's UNI.
10. Check the propriety of the Three-Party communication.
11. Clear the entire call from Network B's UNI.
12. Check that notification *conference disconnected* is received at one of the remote UNIs.
13. Check that all resources are released.
14. Repeat the test for bearer 3.1 kHz audio.
15. Repeat steps 1-14 with Networks A and C interchanged.
16. Repeat steps 1-15 with Networks A and C in the role of Network B.

Test description (Comb):

1. Make a speech call from Network B's (ISUP'92) UNI to Network A's (Q.767) UNI.
2. Check the propriety of speech.
3. Initiate Call Hold at Network B's UNI.
4. Check that call is in held state.
5. Make a speech call from Network B's UNI to Network C's (Q.767) UNI.
6. Check the propriety of speech.
7. Establish Three-Party communication from Network B's UNI.
8. Check the propriety of the Three-Party communication.
9. Clear the entire call from Network B's UNI.
10. Check that all resources are released.
11. Repeat the test for bearer 3.1 kHz audio.
12. Repeat steps 1-11 with Networks A and C interchanged.

Test number: 2.15.1 **Ref.:** 1.1.5.2.1.1/Q.737, 1.5.2.1.1/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 1 – Implicit request – Successful – UUI in the forward and backward messages

Purpose: To verify that user-to-user information can be correctly transferred in both directions.

Pre-test conditions:

1. Arrange the stimulus such that the IAM and REL messages contain the UUI parameter with the maximum number of octets in the UUI.
2. Arrange exchange data such that the requested UUS is supported.
3. Arrange the stimuli such that the backward messages generated contain a UUI parameter.

Expected message sequence

Network A		Network B	
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UUI present
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUI present
		←	ANM UUI present
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001), UUI present
		←	ANM UUI present
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUI present

⇐ COMMUNICATION ⇒

	REL	➔	UUI present, Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the UUI in the appropriate messages.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Verify the UUI in the appropriate messages.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and B interchanged.

Test number: 2.15.2 **Ref.:** 1.1.5.2.5.2.3/Q.737, 1.5.2.1.1/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: UUS service 1 – Implicit request – Discard of UUI by the network

Purpose: To verify that UUI can be discarded by the network without disrupting normal call handling.

Pre-test conditions:

1. Arrange the stimulus such that the IAM message contains the UUI parameter.
2. The requested UUS is not supported in Network B.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UUI present
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUIInd.: UUI discarded by the network
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUIInd.: UUI discarded by the network
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUIInd.: UUI discarded by the network
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the UUI in the SETUP and IAM in Network A.
3. Verify that the call is completed after UUI is discarded.
4. Check that notification UUI discarded by the network is received at Network A's UNI.
5. Check the propriety of digital data transmission or speech.
6. Clear the call from Network A's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.15.3 **Ref.:** 1.1.5.2.1.1.2/Q.737, 1.5.2.1.1.2/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: UUS service 1 – Explicit request – Successful – UUI in the forward and backward messages

Purpose: To verify that the user-to-user information can be correctly transferred in both directions.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains an UUI parameter.
2. Only one terminal at Network B's UNI should react to the incoming SETUP.
3. Arrange exchange data such that the requested UUS1 is supported.
4. Arrange the stimulus such that the backward messages generated contain a UUI parameter.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UUIInd.: UUS1 request – not-essential (10) or essential (11), UUI present – see Note
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUI present, UUIInd.: UUS1 provided (10)
		←	ANM UUI present
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001), UUI present, UUIInd.: UUS1 provided (10)
		←	ANM UUI present
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1) UUI present, UUIInd.: UUS1 provided (10)
⇐ COMMUNICATION ⇒			
		←	REL Cause Ind.: Normal call clearing (16), location user (0000), UUI present
	RLC	→	

NOTE – FCI: ISUP required all the way (10) is set in case of an essential request.

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the UUI and the UUIInd in the appropriate messages.
3. Check the propriety of digital data transmission or speech.

4. Clear the call from Network B's UNI.
5. Verify the UUI in the appropriate messages.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and B interchanged.

Test number: 2.15.4 **Ref.:** 1.1.5.2.5.2.2/Q.737, 1.5.2.1.1.2/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 1 – Explicit request (not-essential) – Implicit rejection by the network

Purpose: To verify that the UUS service 1 Explicit request can be correctly rejected.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UII parameter.
2. The requested UUS1 is implicitly rejected in Network B.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UIInd.: UUS1 request – not-essential (10), UII present
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that UII is discarded in Network B.
3. Verify that the call is completed.
4. Check the propriety of digital data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.15.5 **Ref.:** 1.1.5.2.5.2.2/Q.737, 1.5.2.1.1.2/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 1 – Explicit request (not-essential) – Explicit rejection by the network

Purpose: To verify that the UUI is explicitly discarded without disrupting the call establishment.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUI parameter.
2. Arrange exchange data such that the requested UUS1 is explicitly rejected in Network B.

Expected message sequence

Network A		Network B	
IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UUIInd.: UUS1 request – non-essential (10), UUI present	
COT	➔	<i>Optional message</i>	
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUIInd.: UUS1 not provided (01)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUIInd.: UUS1 not provided (01)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUIInd.: UUS1 not provided (01)
⇐ COMMUNICATION ⇒			
REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check that UUI is discarded in Network B.
3. Check that the indication for UUS1 not provided is received at Network A's UNI.
4. Verify that the call is completed after UUI is discarded.
5. Check the propriety of digital data transmission or speech.
6. Clear the call from Network A's UNI.
7. Check that all resources are released.
8. Repeat the test for speech and 3.1 kHz audio bearers.
9. Repeat steps 1-8 with Networks A and B interchanged.

Test number: 2.15.6 **Ref.:** 1.1.5.2.5.2.2/Q.737, 1.5.2.1.4.1/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 1 – Explicit request (essential) – Explicit rejection by the network

Purpose: To verify that the UUS1 explicit network rejection can be correctly handled.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUI parameter.
2. Arrange exchange data such that the requested UUS1 is explicitly rejected in Network B.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ISUP required all the way (10), UUInd.: UUS1 request – essential (11), UUI present
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: Facility rejected (29) or requested facility not implemented (69), location transit network (0011) or public network serving remote user (0100) or international network (0111), Diagnostic: UUInd name (00101010)
RLC	→	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the call is released.
3. Check that all resources are released by Network B.
4. Repeat the test for speech and 3.1 kHz audio bearers.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 2.15.7 **Ref.:** 1.1.5.2.5.2.2/Q.737, 1.5.2.1.4.2/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 1 – Explicit request (essential) – Explicit rejection by the called user

Purpose: To verify that the UUS1 explicit rejection can be correctly handled.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUS request.
2. Only one terminal at Network B's UNI should react to the incoming SETUP.
3. Arrange the stimulus such that the requested UUS1 is rejected by the terminal at Network B's UNI.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ISUP required all the way (10), UUInd.: UUS1 request – essential (11)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	REL Cause Ind.: Requested facility not implemented (69), location user (0000)
	RLC	→	
Case b		←	REL Cause Ind.: Requested facility not implemented (69), location user (0000)
	RLC	→	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the call is released by Network B's UNI.
3. Check that all resources are released.
4. Repeat the test for speech and 3.1 kHz audio bearers.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 2.16.1 **Ref.:** 1.2.5.2.1.1/Q.737, 1.5.2.2/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 2 – Successful – UUI in the forward and the backward direction

Purpose: To verify that the UUInd and the UUI can be correctly transferred.

Pre-test conditions:

1. Arrange the stimulus such that the IAM message contains the UUI request.
2. Arrange exchange data such that the requested UUS2 is supported in both networks.
3. Arrange the stimulus such that the ACM/CPG generated contain an UUIndicator.

Expected message sequence

Network A		Network B	
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), ISUP required (10), Originating access ISDN (1), UUInd.: UUS2 request – not essential (10) or essential (11) – see Note	
COT	→	<i>Optional message</i>	
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUInd.: UUS2 provided (10)
	→		UUI present
	←	USR	UUI present
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	←	CPG	Event Info: alerting (0000001), UUInd.: UUS 2 provided (10)
	→		UUI present
	←	USR	UUI present
	←	ANM	
⇐ COMMUNICATION ⇒			
REL	→	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

NOTE – FCI: ISUP required all the way (10) is set in case of an essential request.

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the UUI in the USR messages.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.16.2 **Ref.:** 1.2.5.2.5.2.1/Q.737, 1.5.2.2/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 2 – Not essential – Implicit network rejection

Purpose: To verify that the UUS2 implicit network rejection can be correctly handled.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUS2 request (not essential).
2. Arrange exchange data such that the requested UUS2 is implicitly rejected by Network B.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UUInd.: UUS2 request – not essential (10)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the UUS2 request in Network B.
3. Verify that the call completes after UUS2 request is discarded.
4. Check the propriety of digital data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.

Test description (Comb):

1. Make a 64 kbit/s call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Verify the UUS2 in Network B.
3. Verify that the call completes after UUS2 request is discarded.
4. Check the propriety of digital data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.16.3 **Ref.:** 1.2.5.2.5.2.1/Q.737, 1.5.2.2/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 2 – Not essential – Explicit network rejection

Purpose: To verify that the UUS2 explicit network rejection can be correctly handled.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUS2 request.
2. Arrange exchange data such that the requested UUS2 is explicitly rejected by Network B.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UUInd.: UUS2 request – not essential (10)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), UUInd.: UUS2 not provided (01), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), UUInd.: UUS2 not provided (01), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001), UUInd.: UUS2 not provided (01)
		←	ANM
		←	UUInd
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the UUS2 is rejected in Network B.
3. Verify that the call completes.
4. Check the propriety of digital data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and B interchanged.

Test number: 2.16.4 **Ref.:** 1.2.5.2.5.2.1/Q.737, 1.5.2.2/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 2 – Essential – Explicit rejection

Purpose: To verify that the UUS2 explicit network rejection can be correctly handled.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUS2 request.
2. Arrange exchange data such that the requested UUS2 is rejected by Network B.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ISUP required all the way (10), UUInd.: UUS2 request – essential (11)
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: Facility rejected (29) or requested facility not implemented (69), location transit network (0011) or public network serving remote user (0100) or international network (0111), Diagnostic: UUInd name (00101010)
RLC	→	

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the call is released in Network B.
3. Check that all resources are released.
4. Repeat the test for speech and 3.1 kHz audio bearers.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 2.16.5 **Ref.:** 1.2.5.2.5.2.1/Q.737, 1.5.2.2/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 2 – Essential – Explicit rejection – multipoint

Purpose: To verify that the UUS2 explicit network rejection can be correctly handled.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUS2 request.
2. Arrange exchange data such that the requested UUS2 is rejected in Network B.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ISUP required all the way (10), UUInd.: UUS2 request – essential (11)
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: incompatible destination (88), location public network serving remote user (0100), Diagnostic: UUInd name (00101010)
RLC	→	

Test description (ISUP'92):

1. Initiate 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the call is released in Network B.
3. Check that all resources are released.
4. Repeat the test for speech and 3.1 kHz audio bearers.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 2.17.1 **Ref.:** 1.3.5.2.1.1/Q.737, 1.5.2.3/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 3 – Successful – UUI in both directions, request during call establishment

Purpose: To verify that UUI can be correctly transferred in both directions.

Pre-test conditions:

1. Arrange the stimulus such that the IAM contains the UUS3 request.
2. Arrange exchange data such that the requested UUS3 is supported in both networks.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UUInd.: UUS3 request – not essential (10) or essential (11) – see Note
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM UUInd.: UUS3 provided (10)
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM UUInd.: UUS3 provided (10)
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUInd.: UUS3 provided (10)
	USR	→	UUI present
		←	USR UUI present
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

NOTE – FCI: ISUP required all the way (10) is set in case of an essential request.

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Verify the UUI in the USR messages.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.17.2 **Ref.:** 1.3.5.2.5.2.1/Q.737, 1.5.2.3/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 3 – Not essential – Implicit network rejection, request during call establishment

Purpose: To verify that the UUS3 implicit network rejection can be correctly handled.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUS3 request.
2. Arrange exchange data such that the requested UUS3 is only supported in Network A.
3. Arrange exchange data such that the requested UUS3 is implicitly rejected by Network B.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UUInd.: UUS3 request – not essential (10)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the UUS3 is rejected in Network B.
3. Verify that the call completes after UUS3 request is ignored.
4. Check the propriety of digital data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.

Test description (Comb):

1. Make a 64 kbit/s call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Verify that the UUS3 is rejected in Network B.
3. Verify that the call completes after UUS3 request is ignored.
4. Check the propriety of digital data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.17.3 **Ref.:** 1.3.5.2.5.2.1/Q.737, 1.5.2.3/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 3 – Not essential – Explicit rejection, request during call establishment

Purpose: To verify that the UUS3 explicit network rejection can be correctly handled.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUI parameter.
2. Arrange exchange data such that the requested UUS3 is explicitly rejected in Network B.

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), UUIInd.: UUS3 request – not essential (10)
	COT	➔	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM UUIInd.: UUS3 not provided (01)
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM UUIInd.: UUS3 not provided (01)
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), UUIInd.: UUS3 not provided (01)

⇐ COMMUNICATION ⇒

	REL	➔	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify that the UUS3 is rejected in Network B.
3. Verify that the call completes after UUS3 request is rejected.
4. Check the propriety of digital data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and B interchanged.

Test number: 2.17.4 **Ref.:** 1.3.5.2.5.2.1/Q.737, 1.5.2.3/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 3 – Essential – Explicit network rejection, request during call establishment

Purpose: To verify that the UUI can be correctly rejected and that the call is released.

Pre-test conditions:

1. Arrange the stimulus such that the IAM generated contains a UUS request.
2. Arrange exchange data such that the requested UUS is explicitly rejected in Network B.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), ISUP required all the way (10), UUInd.: UUS3 request – essential (11)
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: Facility rejected (29) or requested facility not implemented (69), location transit network (0011) or public network serving remote user (0100) or international network (0111), Diagnostic: UUInd name (00101010)
RLC	→	

Test description (ISUP'92):

1. Initiate a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Verify the UUS3 request in the IAM message.
3. Check that the call is released in Network B.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 2.17.5 **Ref.:** 1.3.5.2.1.1.2/Q.737, 1.5.2.3/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 3 – Successful – UUI in both directions – Request during call

Purpose: To verify that information can be correctly transferred in both directions.

Pre-test conditions:

1. Arrange the stimulus such that the FAR message contains the UUS3 request.
2. Arrange exchange data such that the requested UUS3 is supported.
3. Arrange the stimulus such that the FAA message generated contains a UUInd parameter.
4. Arrange the stimulus such that the USR messages contain UUI parameters.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	FAR	→	Facility indicator: user-to-user service (0000010), UUInd.: UUS3 request – not essential (10)
		←	FAA Facility indicator: user-to-user service (0000010), UUInd.: UUS3 provided (10)
	USR	→	UUI present
		←	USR UUI present
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Verify the UUInd and the Facility Indicator in the FACILITY REQUEST and FACILITY ACCEPTED messages.
4. Verify the UUI in the USR messages.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and B interchanged

Test number: 2.17.6 **Ref.:** 1.3.5.2.5.2.2/Q.737, 1.5.2.3/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 3 – Implicit rejection – Request during call

Purpose: To verify that UUS3 can be correctly rejected and that the call is still established.

Pre-test conditions:

1. Arrange the stimulus such that the FAR message contains the UUS3 request.
2. Arrange exchange data such that the requested UUS3 is only supported in Network A and that UUS3 is explicitly rejected in Network B.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	FAR	→	Facility indicator: user-to-user service (0000010), UUInd.: UUS3 request – not essential (10)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Verify the UUInd and the Facility Indicator in the FACILITY REJECTED messages.
4. Verify the UUS3 request in the FACILITY REQUEST message.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.

Test description (Comb):

1. Make a 64 kbit/s call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Check the propriety of digital data transmission or speech.
3. Verify the UUS3 request in the FACILITY REQUEST message.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.17.7 **Ref.:** 1.3.5.2.5.2.2/Q.737, 1.5.2.3/Q.957.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: User-to-User Signalling service 3 – Explicit rejection – Request during call

Purpose: To verify that UUS3 can be correctly rejected and that the call is still established.

Pre-test conditions:

1. Arrange the stimulus such that the FAR message contains the UUS3 request.
2. Arrange exchange data such that the requested UUS3 is explicitly rejected in Network B.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
⇐ COMMUNICATION ⇒			
	FAR	→	Facility indicator: user-to-user service (0000010), UUIInd.: UUS3 request – non essential (10)
		←	FRJ Facility indicator: user-to-user service (0000010), UUIInd.: UUS3 not provided (01)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
2. Check the propriety of digital data transmission or speech.
3. Verify the UUIInd and the Facility indicator in the FACILITY REQUEST and FACILITY REJECT messages.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 2.18.1 **Ref.:** 3.5.2.2.1/Q.735, 3/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: MLPP – Invocation with no circuit congestion to MLPP subscriber

Purpose: To verify that the parameters for an MLPP call can be correctly transferred.

Pre-test conditions:

1. Arrange the stimulus such that the IAM message contains the MLPP parameter.
2. Both networks must offer MLPP.
3. Arrange exchange data such that the called party belongs to the same MLPP service domain.

Expected message sequence

Network A		Network B	
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), MLPP: LFB Not Allowed (10), Precedence Level, Service Domain present	
COT	→	<i>Optional message</i>	
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP User (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP User (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP User (1)
⇐ COMMUNICATION ⇒			
REL	→	Cause Ind.: Normal call clearing (16), location user (0000)	
	←	RLC	

Test description (ISUP'92):

1. Make a 64 kbit/s MLPP call from Network A's UNI to Network B's UNI.
2. Verify the MLPP indication in the SETUP and IAM messages.
3. Verify the MLPP indication in the CONNECT and ACM/CON messages.
4. Check the propriety of digital data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and B interchanged.

Test number: 2.18.2 **Ref.:** 3.5.2.2.1/Q.735, 3/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: MLPP – Invocation with no circuit congestion to non-MLPP subscriber

Purpose: To verify that the parameters for an MLPP call can be correctly transferred.

Pre-test conditions:

1. Arrange the stimulus such that the IAM message contains the MLPP parameter.
2. Arrange exchange data such that the called party is a non-MLPP subscriber.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), MLPP: LFB Not Allowed (10), Precedence Level, Service Domain present
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI <i>if present</i> : No indication (D = 0)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI <i>if present</i> : No indication (D = 0)
		←	CPG Event Info: alerting (0000001)
		←	ANM
Case c		←	CON BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI <i>if present</i> : No indication (D = 0)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s MLPP call from Network A's UNI to Network B's UNI.
2. Verify the MLPP indication in the SETUP and IAM messages.
3. Verify the MLPP indication in the CONNECT and ACM/CON messages if present.
4. Check the propriety of digital data transmission or speech.
5. Clear the call from Network A's UNI.
6. Check that all resources are released.
7. Repeat the test for speech and 3.1 kHz audio bearers.
8. Repeat steps 1-7 with Networks A and B interchanged.

Test description (Comb):

1. Make a 64 kbit/s MLPP call from Network A's (ISUP'92) UNI to Network B's (Q.767) UNI.
2. Verify the MLPP indication in the SETUP and IAM messages.
3. Check the propriety of digital data transmission or speech.
4. Clear the call from Network A's UNI.
5. Check that all resources are released.
6. Repeat the test for speech and 3.1 kHz audio bearers.

Test number: 2.18.3 **Ref.:** 3.5.2.2.3.1/Q.735, 3/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: MLPP – Invocation when congestion encountered, release of circuit reserved for re-use

Purpose: To verify that the busy circuit is preempted and reserved for re-use.

Pre-test conditions:

1. Arrange the stimulus such that the IAM message contains the MLPP parameter.
2. Arrange that circuit congestion is encountered in Network A after the first MLPP call is established.
3. Arrange that precedence level of the second MLPP call is higher than precedence level of the first MLPP call and both belong to the same service domain.
4. Arrange exchange data such that the released circuit will be used to complete the second (preempting) call.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), MLPP: LFB Not Allowed (10), Precedence Level, Service Domain present
	COT	→	<i>Optional message</i>
Case a	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
	←	ANM	
Case b	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case c	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)

⇐ COMMUNICATION ⇒

	REL	→	Cause Ind.: Preemption – circuit reserved for re-use (9), location public network serving remote user (0100)
	←	RLC	
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), MLPP: LFB Not Allowed (10), Precedence Level, Service Domain present
	COT	→	<i>Optional message</i>
Case A	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
	←	ANM	

Network A		Network B	
Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case C	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92):

1. Make a 64 kbit/s MLPP call from Network A to Network B.
2. Make a second 64 kbit/s MLPP call from Network A's UNI to Network B's UNI.
3. Verify that the first call is preempted and that the released circuit is reserved for re-use.
4. Verify the MLPP indication in the SETUP and IAM messages.
5. Verify the MLPP indication in the CONNECT and ACM/CON messages.
6. Check the propriety of digital data transmission or speech.
7. Clear the call from Network A's UNI.
8. Check that all resources are released.
9. Repeat the test for speech and 3.1 kHz audio bearers.
10. Repeat steps 1-9 with Networks A and B interchanged.

Test number: 2.18.4 **Ref.:** 3.5.2.2.3.1/Q.735, 3/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: MLPP – Invocation when congestion encountered, release of circuit not reserved for re-use

Purpose: To verify that the busy circuit is preempted and can be used for an ordinary call (or a MLPP call).

Pre-test conditions:

1. Arrange the stimulus such that the IAM message contains the MLPP parameter.
2. Arrange that circuit congestion is encountered in Network B after the first MLPP call is established
3. Arrange that precedence level of the second MLPP call is higher than precedence level of the first MLPP call and both belong to the same service domain.
4. Arrange exchange data such that the circuit not reserved for re-use will be used to complete the ordinary call.

Expected message sequence

	Network A		Network B		Network C	
	IAM	→	IAM	→		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), MLPP: LFB Not Allowed (10), Precedence Level, Service Domain present
	COT	→	COT	→		<i>Optional message</i>
Case a		←	ACM	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
		←	ANM	←	ANM	
Case b		←	ACM	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
		←	CPG	←	CPG	Event Info: alerting (0000001)
		←	ANM	←	ANM	
Case c		←	CON	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
⇐ COMMUNICATION ⇒						
			REL	→		Cause Ind.: Preemption – circuit reserved for re-use (9), location public network serving remote user (0100)
				←	RLC	
		←	REL			Cause Ind.: Preemption (8), location public network serving remote user (0100)
	RLC	→				

Network A	Network B	Network C	
	IAM →		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), MLPP: LFB Not Allowed (10), Precedence Level, Service Domain present
	COT →		<i>Optional message</i>
Case A	←	ACM	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
	←	ANM	
Case B	←	ACM	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)
	←	CPG	Event Info: alerting (0000001)
	←	ANM	
Case C	←	CON	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1), OBCI: MLPP user (1)

⇐ COMMUNICATION ⇒

IAM →	Simplified call establishment
← ACM	
← ANM	

⇐ COMMUNICATION ⇒

REL →	Cause Ind.: Normal call clearing (16), location user (0000)
← RLC	
REL →	Cause Ind.: Normal call clearing (16), location user (0000)
← RLC	

Test description (ISUP'92):

1. Make a 64 kbit/s MLPP call from Network A to Network C via Network B.
2. Make a second 64 kbit/s MLPP call from Network B to Network C.
3. Verify that the circuit between Network A and Network B is preempted and not reserved for re-use.
4. Make a 64 kbit/s call from Network A's UNI to Network B's UNI.
5. Check the propriety of digital data transmission or speech for the call between Network A's UNI and Network B's UNI.
6. Clear the ordinary call from Network A's UNI.
7. Clear the MLPP call from Network B's UNI.
8. Check that all resources are released.
9. Repeat the test for speech and 3.1 kHz audio bearers.
10. Repeat steps 1-9 with Networks A and B interchanged.

Test number: 2.18.5 **Ref.:** 3.5.2.2.5.2/Q.735, 3/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: MLPP – Invocation when congestion encountered, unsuccessful search for preemptable circuits

Purpose: To verify that the MLPP call attempt can be rejected correctly in case of no available preemptable circuit.

Pre-test conditions:

1. Arrange the stimulus such that the IAM message contains the MLPP parameter.
2. Arrange that circuit congestion is encountered in Network B.
3. Arrange exchange data such that there is no preemptable circuit available of the requested bearer capability in Network B.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), MLPP: LFB Not Allowed (10), Precedence Level, Service Domain present
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: Precedence call blocked (46), location transit network (0011) or public network serving remote user (0100) or private network serving remote user (0101) or international network (0111)
RLC	→	

Test description (ISUP'92):

1. Initiate a 64 kbit/s MLPP call from Network A's UNI to Network B's UNI.
2. Verify the MLPP indication in the SETUP and IAM messages.
3. Check that the call is released from Network B.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 2.18.6 **Ref.:** 3.5.2.2.2/Q.735, 3/Q.955.

Config.: ISDN Access → ISDN Access (See Figure 2)

Title: MLPP – Invocation when congestion encountered, precedence level too low to preempt

Purpose: To verify that the MLPP call attempt can be correctly rejected if the precedence level is too low to preempt.

Pre-test conditions:

1. Arrange the stimulus such that the IAM message contains the MLPP parameter.
2. Arrange that circuit congestion is encountered in Network B.
3. Arrange exchange data such that all preemptable circuits in the MLPP service domain have a higher or the same precedence level than the new call.

Expected message sequence

Network A		Network B
IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1), MLPP: LFB Not Allowed (10), Precedence Level, Service Domain present
COT	→	<i>Optional message</i>
	←	REL Cause Ind.: Precedence call blocked (46), location public network serving remote user (0100) or private network serving remote user (0101)
RLC	→	

Test description (ISUP'92):

1. Initiate a 64 kbit/s MLPP call from Network A's UNI to Network B's UNI.
2. Verify the MLPP indication in the SETUP and IAM messages.
3. Check that the call is released from Network B.
4. Check that all resources are released.
5. Repeat the test for speech and 3.1 kHz audio bearers.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 3.1.1.1 **Ref.:** 2.1.1.1/Q.764, 5.1.6/Q.931, 3.3.2/Q.699.

Config: ISDN Access → Undetermined Access (See Figure 6)

Title: Normal call release – Calling party clears before answer

Purpose: To verify that the calling party can successfully release a call prior to receipt of an answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
Case b		←	ACM BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	CPG <i>Optional message</i> Event Info: alerting (0000001)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Initiate a speech call from Network A's UNI to Network B's UNI.
2. Clear the call from Network A's UNI.
3. Check that all resources are released.
4. Repeat the test for 3.1 kHz audio bearer.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 3.1.1.2 **Ref.:** 2.1.1.1/Q.764, 5.1.6/Q.931, 4.3.2/Q.699.

Config.: ISDN Access → Undetermined Access (See Figure 6)

Title: Normal call release – Calling party clears after answer

Purpose: To verify that the calling party can successfully release a call after receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	CPG <i>Optional message</i> Event Info: alerting (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat the test for 3.1 kHz audio bearer.
6. Repeat steps 1-5 with Networks A and B interchanged.

Test number: 3.1.1.3 **Ref.:** 2.4.1/Q.764, 5.1.6/Q.931, 4.3.2/Q.699.

Config.: ISDN Access → Undetermined Access (See Figure 6)

Title: Normal call release – Called party suspends after answer

Purpose: To verify that the calling party can successfully clear a call after the called party suspended the call.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01) Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	CPG <i>Optional message</i> Event Info: alerting (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
		←	SUS network initiated (1)
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Suspend the call from Network B's UNI.
4. Clear the call from Network A's UNI after receiving the suspend indication from Network B's UNI.
5. Check that all resources are released.
6. Repeat the test for 3.1 kHz audio bearer.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 3.1.1.4 **Ref.:** 2.4.3/Q.764, 5.1.6/Q.931, 4.3.2/Q.699.

Config.: ISDN Access → Undetermined Access (See Figure 6)

Title: Normal call release – Called party suspends after answer, expiry of T6

Purpose: To verify that timer T6 in Network A works correctly.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	CPG <i>Optional message</i> Event ind.: alert (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
		←	SUS network initiated (1)
	REL	→	Cause Ind.: Recovery on timer expiry (102), location public network serving the remote user (0100)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Suspend the call from Network B's UNI.
4. Check that the call is released from Network A after expiry of T6.
5. Check that all resources are released.
6. Repeat the test for 3.1 kHz audio bearer.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 3.1.1.5 **Ref.:** 2.4.3/Q.764, 5.1.6/Q.931, 4.3.2/Q.699.

Config.: ISDN Access → Undetermined Access (See Figure 6)

Title: Normal call release – Called party suspends after answer, expiry of T38

Purpose: To verify that timer T38 in Network B works correctly.

Pre-test conditions: Arrange in Network A such that T6 does not expire before T38 in Network B expires.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	CPG <i>Optional message</i> Event ind.: alert (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
		←	SUS network initiated (1)
		←	REL Cause Ind.: Recovery on timer expiry (102), location international network (0111)
	RLC	→	

Test description (ISUP'92, Comb):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Suspend the call from Network B's UNI.
4. Check that the call is released from Network B after expiry of T38.
5. Check that all resources are released.
6. Repeat the test for 3.1 kHz audio bearer.
7. Repeat steps 1-6 with Networks A and B interchanged.

Test number: 3.1.2.1 **Ref.:** 2.2/Q.764, 5.3.4.1/Q.931.

Config.: ISDN Access → Undetermined Access (See Figure 6)

Title: Unsuccessful call set-up – All circuits busy at destination network

Purpose: To verify that the call will be successfully released when all circuits are busy.

Pre-test conditions: All circuits are busy at Network B.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	REL Cause Ind.: No circuits available (34), location transit network (0011) or beyond interworking point (1010) or public network serving remote user (0100) or international network (0111)
	RLC	→	
Case b		←	ACM BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	REL Cause Ind.: No circuits available (34), location transit network (0011) or beyond interworking point (1010) or public network serving remote user (0100) or international network (0111)
	RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a speech call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for 3.1 kHz audio bearer.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 3.1.2.2 **Ref.:** 2.2/Q.764, 5.3.4.1/Q.931.

Config.: ISDN Access → Undetermined Access (See Figure 6)

Title: Unsuccessful call set-up – Dialing of an unallocated number

Purpose: To verify that a call will be successfully released when dialing an unallocated number.

Pre-test conditions: Unallocated national destination code or subscriber number in Network B.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	REL Cause Ind.: Unallocated number (1), location beyond an interworking point (1010) public network serving remote user (0100)
	RLC	→	
Case b		←	ACM BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	REL Cause Ind.: Unallocated number (1), location beyond an interworking point (1010) public network serving remote user (0100)
	RLC	→	

Test description (ISUP'92, Comb):

1. Initiate a speech call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for 3.1 kHz audio bearer.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 3.1.2.3 **Ref.:** 2.2/Q.764, 5.3.4.1/Q.931.

Config.: ISDN Access → Undetermined Access (See Figure 6)

Title: Unsuccessful call set-up – Calling to a busy subscriber

Purpose: To verify that the call can be successfully released when dialing a busy termination.

Pre-test conditions: The called termination is busy, the interworking point is able to generate REL user busy.

Expected message sequence

Network A Network B

	IAM	→		FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→		<i>Optional message</i>
Case a		←	REL	Cause Ind.: user busy (17), location beyond interworking point (1010)
	RLC	→		
Case b		←	ACM	BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	REL	Cause Ind.: user busy (17), location beyond interworking point (1010)
	RLC	→		

Test description (ISUP'92, Comb):

1. Initiate a speech call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for 3.1 kHz audio bearer.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 3.1.3.1 **Ref.:** 2.1.4/Q.764, 5.3.4.1/Q.931.

Config.: ISDN Access → Undetermined Access (See Figure 6)

Title: Abnormal situation during a call – No answer from user – user alerted

Purpose: To verify that the call can be successfully released when T9/Q.764 wait for answer timer expires.

Pre-test conditions: The called party doesn't answer.

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
Case b		←	ACM BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0)
		←	CPG <i>Optional message</i> Event Info: alerting (0000001)
	REL	→	Cause Ind.: No answer from user (user alerted) (19), location transit network (0011) or public network serving remote user (0100) or international network (0111)
		←	RLC

Test description (ISUP'92, Comb):

1. Initiate a speech call from Network A's UNI to Network B's UNI.
2. Check that all resources are released.
3. Repeat the test for 3.1 kHz audio bearer.
4. Repeat steps 1-3 with Networks A and B interchanged.

Test number: 3.2.1.1 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931, 4.3.1/Q.699.

Config: Undetermined Access → ISDN Access (See Figure 6)

Title: Normal call release – Calling party clears before answer

Purpose: To verify that the calling party can successfully release a call prior to receipt of an answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
		←	COT <i>Optional message</i>
Case a	ACM	→	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	→	Event Info: alerting (0000001)
		←	REL Cause Ind.: Normal call clearing (16), location public network serving remote user (0100) or beyond interworking point (1010)
	RLC	→	

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Initiate a call from Network B's UNI to Network A's UNI.
2. Clear the call from Network B's UNI.
3. Check that all resources are released.
4. Repeat the test for 3.1 kHz audio bearer.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 3.2.1.2 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931, 4.3.1/Q.699.

Config.: Undetermined Access → ISDN Access (See Figure 6)

Title: Normal call release – Calling party clears after answer

Purpose: To verify that the calling party can successfully release a call after receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
		←	COT <i>Optional message</i>
Case a	ACM	→	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	ANM	→	
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	→	Event Info: alerting (0000001)
	ANM	→	
⇐ COMMUNICATION ⇒			
		←	REL Cause Ind.: Normal call clearing (16), location user (0000) or public network serving remote user (0100) or private network serving remote user (0100) or beyond interworking point (1010)
	RLC	→	

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Make a call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Clear the call from Network 's B's UNI.
4. Check that all resources are released.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 3.2.1.3 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931, 4.3.1/Q.699.

Config.: Undetermined Access → ISDN Access (See Figure 6)

Title: Normal call release – Called party clears after answer

Purpose: To verify that the called party can successfully release a call after receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
		←	COT <i>Optional message</i>
Case a	ACM	→	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	ANM	→	
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	→	Event Info: alerting (0000001)
	ANM	→	
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Make a call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 3.2.2.1 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931.

Config: Undetermined Access → ISDN Access (See Figure 6)

Title: Unsuccessful call set-up – All circuits busy at destination network

Purpose: To verify that the call will be successfully released, if all circuits are busy.

Pre-test conditions: All circuits are busy in international, national or access circuit groups.

Expected message sequence

Network A		Network B	
		←	IAM FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
		←	COT <i>Optional message</i>
Case a	REL	→	Cause Ind.: No circuit available (34), location public network serving remote user (0100) or private network serving remote user (0101) or transit network (0011) or international network (0111)
		←	RLC
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	REL	→	Cause Ind.: No circuit available (34), location public network serving remote user (0100) or private network serving remote user (0101)
		←	RLC

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Initiate a call from Network B's UNI to Network A's UNI.
2. Check that all resources are released.
3. Repeat steps 1-2 with Networks A and B interchanged.

Test number: 3.2.2.2 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931.

Config: Undetermined Access → ISDN Access (See Figure 6)

Title: Unsuccessful call set-up – Dialling of an unallocated number

Purpose: To verify that the call will be successfully released, when dialling an unallocated number.

Pre-test conditions: Unallocated subscriber number in Network A.

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
		←	COT <i>Optional message</i>
Case a	REL	→	Cause Ind.: Unallocated number (1), location public network serving remote user (0100)
		←	RLC
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1),
	REL	→	Cause Ind.: Unallocated number (1), location public network serving remote user (0100)
		←	RLC

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Initiate a call from Network B's UNI to Network A's UNI.
2. Check that all resources are released.
3. Repeat steps 1-2 with Networks A and B interchanged.

Test number: 3.2.2.3 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931.

Config: Undetermined Access → ISDN Access (See Figure 6)

Title: Unsuccessful call set-up – No route to destination

Purpose: To verify that the call will be successfully released when there is no route to destination.

Pre-test conditions: Called party number has invalid country or national destination code.

Expected message sequence

Network A		Network B
	←	IAM FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
	←	COT <i>Optional message</i>
REL	→	Cause Ind.: No route to destination (3), location transit network (0011) or international network (0111) or private network serving remote user (0101)
	←	RLC

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Initiate a call from Network B's UNI to Network A's UNI.
2. Check that all resources are released.
3. Repeat steps 1-2 with Networks A and B interchanged.

Test number: 3.2.2.4 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931.

Config: Undetermined Access → ISDN Access (See Figure 6)

Title: Unsuccessful call set-up – Calling to a busy subscriber

Purpose: To verify that the call will be successfully released when dialling a busy termination.

Pre-test conditions: The called termination is busy.

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
		←	COT <i>Optional message</i>
Case a	REL	→	Cause Ind.: User busy (17), location user (0000) or public network serving remote user (0100) or private network serving remote user (0101)
		←	RLC
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	REL	→	Cause Ind.: User busy (17), location user (0000) or public network serving remote user (0100) or private network serving remote user (0101)
		←	RLC

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Initiate a call from Network B's UNI to Network A's UNI.
2. Check that all resources are released.
3. Repeat steps 1-2 with Networks A and B interchanged.

Test number: 3.2.2.5 **Ref.:** 2.2.5/Q.764, 5.2.6/Q.931.

Config: Undetermined Access → ISDN Access (See Figure 6)

Title: Unsuccessful call set-up – Address incomplete

Purpose: To verify that the call will be successfully released, if called number is incomplete.

Pre-test conditions: Called number is incomplete.

Expected message sequence

Network A		Network B
	←	IAM FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
	←	COT <i>Optional message</i>
REL	→	Cause Ind.: Address incomplete (28), location public network serving remote user (0100) or transit network (0011) or international network (0111)
	←	RLC

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Initiate a call from Network B's UNI to Network A's UNI.
2. Check that all resources are released.
3. Repeat steps 1-2 with Networks A and B interchanged.

Test number: 3.2.3.1 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931.

Config: Undetermined Access → ISDN Access (See Figure 6)

Title: Abnormal situation during a call – No response from called party

Purpose: To verify that the call will be successfully released when the T303 timer expires.

Pre-test conditions: Called party does not respond.

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
		←	COT <i>Optional message</i>
Case a	REL	→	Cause Ind.: No user responding (18), location public network serving remote user (0100) or private network serving remote user (0101)
		←	RLC
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	REL	→	Cause Ind.: No user responding (18), location public network serving remote user (0100) or private network serving remote user (0101)
		←	RLC

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Initiate a call from Network B's UNI to Network A's UNI.
2. Check that all resources are released.
3. Repeat steps 1-2 with Networks A and B interchanged.

Test number: 3.3.1.1 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931, 5.3.1/Q.699.

Config.: Undetermined Access → Undetermined Access (See Figure 7)

Title: Normal call release – Calling party clears after answer

Purpose: To verify that the calling party can successfully release a call after receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0) – see Note
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0) – see Note
		←	CPG <i>Optional message</i> Event Info: alerting (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location beyond interworking point (1010)
		←	RLC

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Make a call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 4.1.1.1 **Ref.:** 2.3.1/Q.764, 5.1.6/Q.931, 6.3.1/Q.699.

Config.: ISDN Access → Non-ISDN Access (See Figure 8)

Title: Normal call release – Calling party clears after answer

Purpose: To verify that the calling party can successfully release a call after receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access ISDN (1)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access non-ISDN (0)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access non-ISDN (0)
		←	CPG <i>Optional message</i> Event Info: alerting (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000) or private network serving remote user (0100)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a speech call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 4.2.1.1 **Ref.:** 2.3.1/Q.764, 5.2.6/Q.931, 6.3.2/Q.699.

Config.: Non-ISDN Access → ISDN Access (See Figure 8)

Title: Normal call release – Calling party clears after answer

Purpose: To verify that the calling party can successfully release a call after receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access non-ISDN (0)
		←	COT <i>Optional message</i>
Case a	ACM	→	BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	ANM	→	
Case b	ACM	→	BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
	CPG	→	Event Info: alerting (0000001)
	ANM	→	
⇐ COMMUNICATION ⇒			
		←	REL Cause Ind.: Normal call clearing (16), location user (0000)
	RLC	→	

Test description (ISUP'92, Comb):

1. Make a call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Clear the call from Network B's UNI.
4. Check that all resources are released.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 4.3.1.1 **Ref.:** 2.3.1/Q.764, D.2.1.4.1/Q.764, 7.3.1/Q.699.

Config.: Undetermined Access → Non-ISDN Access (See Figure 9)

Title: Normal call release – Calling party clears after answer

Purpose: To verify that the calling party can successfully release a call after receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	➔	FCI: Interworking encountered (1), ISDN User Part not used all the way (0), Originating access non-ISDN (0) – see Note
	COT	➔	<i>Optional message</i>
Case a		⬅	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access ISDN (1)
		⬅	ANM
Case b		⬅	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access non-ISDN (0)
		⬅	CPG <i>Optional message</i> Event Info: alerting (0000001)
		⬅	ANM
⇐ COMMUNICATION ⇒			
	REL	➔	Cause Ind.: Normal call clearing (16), location beyond interworking point (1010)
		⬅	RLC

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Make a call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 4.4.1.1 **Ref.:** 2.3.1/Q.764, D.2.1.4.1/Q.764, 7.3.2/Q.699.

Config.: Non-ISDN Access → Undetermined Access (See Figure 9)

Title: Normal call release – Calling party clears after answer

Purpose: To verify that the calling party can successfully release a call after receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
		←	IAM FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access non-ISDN (0)
		←	COT <i>Optional message</i>
Case a	ACM	→	BCI: Subscriber free (01), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0) – see Note
	ANM	→	
Case b	ACM	→	BCI: No indication (00), Interworking encountered (1), ISDN User Part not used all the way (0), Terminating access non-ISDN (0) – see Note
	CPG	→	<i>Optional message</i> Event Info: alerting (0000001)
	ANM	→	
⇐ COMMUNICATION ⇒			
		←	REL Cause Ind.: Normal call clearing (16), location user (0000) or public network serving remote user (0100) or private network serving remote user (0101)
	RLC	→	

NOTE – In case of calls to a non-ISUP Signalling System No. 7 system, the interworking indicator is coded interworking not encountered (0).

Test description (ISUP'92, Comb):

1. Make a call from Network B's UNI to Network A's UNI.
2. Check the propriety of speech.
3. Clear the call from Network B's UNI.
4. Check that all resources are released.
5. Repeat steps 1-4 with Networks A and B interchanged.

Test number: 4.5.1.1 **Ref.:** 2.3.1/Q.764, D.2.1.4.1/Q.764, 8.3.1/Q.699.

Config.: Non-ISDN Access → Non-ISDN Access (See Figure 10)

Title: Normal call release – Calling party clears after answer

Purpose: To verify that the calling party can successfully release a call after receipt of answer.

Pre-test conditions:

Expected message sequence

	Network A		Network B
	IAM	→	FCI: Interworking not encountered (0), ISDN User Part used all the way (1), Originating access non-ISDN (0)
	COT	→	<i>Optional message</i>
Case a		←	ACM BCI: Subscriber free (01), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access non-ISDN (0)
		←	ANM
Case b		←	ACM BCI: No indication (00), Interworking not encountered (0), ISDN User Part used all the way (1), Terminating access non-ISDN (0)
		←	CPG <i>Optional message</i> Event Info: alerting (0000001)
		←	ANM
⇐ COMMUNICATION ⇒			
	REL	→	Cause Ind.: Normal call clearing (16), location user (0000)
		←	RLC

Test description (ISUP'92, Comb):

1. Make a call from Network A's UNI to Network B's UNI.
2. Check the propriety of speech.
3. Clear the call from Network A's UNI.
4. Check that all resources are released.
5. Repeat steps 1-4 with Networks A and B interchanged.

ITU-T RECOMMENDATIONS SERIES

Series A	Organization of the work of the ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communication
Series Z	Programming languages