Telenor Networks

Test descriptions

for Signalling System No.7

national interconnect

between Telenor Networks

and another telecom operator

MTP tests

Telenor Norwegian national interconnect ISUP v1 tests:

ISUP transit tests

ISDN-ISDN end-to-end

ISDN-analogue end-to-end

CONTENTS

1 TELENOR NATIONAL INTERCONNECT SS NO.7 MESSAGE TRANSFER PART TEST LIST

Proposed configuration data and MTP test lists

1.1 General

TELENOR national ISUP interconnect signalling point codes:

_____

Network operator national ISUP interconnect signalling point codes:

_____

Link set:
Type of error correction: Basic
Signalling link identity numbering: Start from SLC 0 for international circuits, start from SLC 1 for national interconnect circuits
Signalling link time slot: TS 1 for international circuits, TS 16 for national interconnect circuits
Load sharing across link sets: Not employed
End to end circuit supervision: Not employed

Proposed MTP test procedures (to be performed in case MTP No.7 signalling is not already available)
Tests reference CCITT Blue Book Q.781 and Q.782.

1.2 LEVEL 2 TEST

Table V.8-3.1

Test no.(Q.781)	Title	Remark	Result
1.1	Link state control Power up	This is a transient state within test 1.5	
1.2	Link state control Timer T2		
1.5	Link state control Normal alignment	This is also able to check the timer T4	
1.29	Link state control Deactivation during link in service		
3.5	Transmission failure Break Tx path during		

	link in service		

1.3 LEVEL 3 TEST

Table V.8-3.2

Test no.(Q.782)	Title	Remark	Result
1.1	Signalling link management First signalling link activation		
1.2	Signalling link management Signalling linkset deactivation		
4.1	Changeback Changeback within a linkset		
3.16	Changeover Changeover to another linkset with adjacent SP accessible	Netw.config.B	
4.8	Changeback Changeback from another linkset		
7.2.1	Inhibition not permitted Local reject on available link		
7.1.1	Inhibition of a link Available link		
7.6.1	Manual uninhibition of a link, with changeback	End of test 7.1.1	
7.1.2	Inhibition of a link Unavailable link		
7.6.2	Manual uninhibition of a link, without changeback	End of test 7.1.1	
12.1	Signalling link test after activation of a link		

TELENOR national interconnect ISUP version 1 and 2 test list

Table V.8-4.1 **National interconnect gateway ISUP signalling compatibility test list.**

TELENOR exchange:..... ..... " :.....			**Q.784 basic call tests**		**Page: 1**
Q.784 test no.	**Test case**	**Remark**	**Date**	**Result**	**Comments**
1.1	Non-allocated circuits	Not proposed			
1.3.1.1	CGB and CGU received				
1.3.1.2	CGB and CGU sent				
1.3.2.1	BLO received				
1.3.2.2	BLO sent				
1.3.2.3	Blocking from both ends; removal of blocking from one end				
1.3.2.4	IAM received on a remotely blocked circuit	Not proposed			
2.1.1	IAM sent by controlling SP				
2.1.2	IAM sent by non-controlling SP				
2.2.1	"en bloc" operation				
2.2.2	Overlap operation (with SAM)				
2.3.1	Ordinary call (with various indications in ACM)				
2.3.2	Ordinary call (with ACM, CPG and ANM)				
2.3.3	Ordinary call (with various indications in CON)				
2.3.4	Call switched via satellite				
2.3.5	Echo control procedure for call setup				

Table V.8-4.1 **National interconnect gateway ISUP signalling compatibility test list.**

TELENOR exchange:..... **..... “ :.....**			**Q.784 basic call tests**		**Page: 2**
Q.784 test no.	**Test case**	**Remark**	**Date**	**Result**	**Comments**
2.3.6	Blocking and unblocking during a call (initiated)				
2.3.7	Blocking and unblocking during a call (received)				
3.1	Calling party clears before address complete				
3.2	Calling party clears before answer				
3.3	Calling party clears after answer				
3.4	Called party clears after answer				
3.5	Suspend initiated by the network				
3.7	Suspend and resume initiated by a called party	proposed additionally			
4.1	Validate a set of known causes for release	cause 20 included			
5.2.2	T9: waiting for an answer message				
ETS 300 482, sec. 7	PLMN/ISDN early ACM timer	Only mobile network			
5.3.1	Reset of circuits during a call; Of an outgoing circuit	Not proposed			
5.3.2	Reset of circuits during a call; Of an incoming circuit	Not proposed			
7.1.1	64 kbit/s unrestricted bearer service; Successful call setup				
7.1.2	64 kbit/s unrestricted bearer service; Unsuccessful call setup				
7.2.1	3.1 kHz audio bearer service; Successful call setup				

Note: For the purpose of the tests in CCITT recommendation Q.784 subclause 5.2, timers T1, T5, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22 and T23 with timer values either according to ETS 300 121 or ETS 300 356-1 shall both be considered to be compliant to ETS 300 303.

Table V.8-4.1 **National interconnect gateway ISUP signalling compatibility test list.**

TELENOR exchange:..... **..... " :.....**			**Q.785 suppl. service tests**		**Page: 3**
Q.785 test no.	**Test case**	**Remark**	**Date**	**Result**	**Comments**
1.1.1.1.1	UUS1 impl.; Successful - UUI in the forward message: sent				
1.1.1.1.2	UUS1 impl.; Successful - UUI in the forward message: received				
1.1.1.2.1	UUS1 impl.; Successful - UUI in the backward message: sent				
1.1.1.2.2	UUS1 impl.; Successful - UUI in the backward message: received				
1.1.1.3.1	UUS1 impl.; Unsuccesful - Explicit network rejection: sent				
1.1.1.3.2	UUS1 impl.; Unsuccessful - Explicit network rejection: received				
2.1.1	CUG call with outgoing access allowed: sent	int. interlock codes			
2.1.2	CUG call with outgoing access allowed: received	int. interlock codes			
2.1.3 or 2.1.5	CUG call with outgoing access not allowed: sent	int. interlock codes			
2.1.4 or 2.1.6	CUG call with outgoing access not allowed: received	int. interlock codes			
3.1.1	CLIP - network provided: sent				
3.1.2	CLIP - network provided: received				
3.2.1	CLIP - user provided: sent				
3.2.2	CLIP - user provided: received				
3.3.1	CLIR - network provided: sent				
3.3.2	CLIR - network provided: received				
3.4.1	CLIR - user provided: sent				
3.4.2	CLIR - user provided: received				

Table V.8-4.1 **National interconnect gateway ISUP signalling compatibility test list.**

TELENOR exchange:..... ..... “ :.....			**Q.785 suppl. service tests**		**Page: 4**
Q.785 test no.	**Test case**	**Remark**	**Date**	**Result**	**Comments**
3.5.1	CLI - not available: sent	not applic.			
3.5.2	CLI - not available: received	not applic.			
3.7.1	CLI - international address included: sent				
3.7.2	CLI - international address included: received				
6.1.1	COL - request: sent				
6.1.2	COL - request: received				
6.2.1	COLP - network provided: sent				
6.2.2	COLP - network provided: received				
6.3.1	COLP - user provided: sent				
6.3.2	COLP - user provided: received				
6.4.1	COLR - network provided: sent				
6.4.2	COLR - network provided: received				
6.5.1	COLR - user provided: sent				
6.5.2	COLR - user provided: received				
6.6.1	COL - not available: sent				
6.6.2	COL - not available: received				
6.8.1	COL - received, but not requested				
ETS300 482 sec. 8.1	Forwarded call: sent and received, Redirecting number included				
ETS300 482 sec. 8.2	Call to be forwarded: sent and received				

ISDN End-to-End Tests for TELENOR national interconnect ISUP version 1 and 2 interface

National ISDN end-to-end list of proposed test cases
Note that test numbering is based on EURESCOM project P104, but it is not required to have access to P104 test descriptions or scripts in order to perform the tests.

Please notify modified and additional tests:

Tests that ends with letter **-N** are national modifications due to different behavior than described in EURESCOM Project P104, or an additional test that is not described in project P104.
Modified tests: 20201N.
Additional test: 11317N, 1320N, 11323N, 11326N.

Supplementary services:

Only supplementary services implemented in **ISUP v1** are listed in TN test list. Interworking PSTN-ISDN and ISDN-PSTN supplementary service tests are skipped.

Table V.8-5.1 Bearer service = speech

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
11101		No HLC, en-block sending	Ensure that call establishment using en-block sending is performed correctly.	Covered by test 11301	Covered by test 11301
11102		No HLC, overlap sending	Ensure that call establishment using overlap sending is performed correctly.	Covered by test 11302	Covered by test 11302
11103		No HLC, calling party clears after answer	Ensure that the clearing procedure is performed correctly.		
11104		No HLC, called party clears after answer	Ensure that the clearing procedure is performed correctly.		
11105		HLC = telephony	Ensure that HLC can be transported transparently through the network		

Table V.8-5.2 Bearer service = 3.1 kHz audio

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
11201		No HLC, en-block sending	Ensure that call establishment using en-block sending is performed correctly.	Covered by test 11301	Covered by test 11301
11202		No HLC, overlap sending	Ensure that call establishment using overlap sending is performed correctly.	Covered by test 11302	Covered by test 11302
11203		No HLC, calling party clears after answer	Ensure that the clearing procedure is performed correctly.		
11204		No HLC, called party clears after answer	Ensure that the clearing procedure is performed correctly.		
11205		HLC = telefax group 2/3	Ensure that HLC can be transported transparently through the network		
11206		LLC = voice band data via modem	Ensure that LLC can be transported transparently through the network		

Table V.8-5.3 Bearer service = 64 kb/s unrestricted

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
11301		No HLC, en-block sending	Ensure that call establishment using en-block sending is performed correctly.		
11302		No HLC, overlap sending	Ensure that call establishment using overlap sending is performed correctly.		
11303		No HLC, calling party clears after answer	Ensure that the clearing procedure is performed correctly.		
11304		No HLC, called party clears after answer	Ensure that the clearing procedure is performed correctly.		
11305		HLC = telefax group 4	Ensure that HLC can be transported transparently through the network		
11306		HLC = telefax group 4, LLC= layer2 + layer 3 information on the B-channel protocol.	Ensure that HLC and LLC can be transported transparently through the network		
11315		BC=V110/X30 rate adaption syncronous user rate 2,4 kb/s	Ensure that the BC can be transported transparently through the network.		
11316		BC=V110/X30 rate adaption syncronous user rate 9,6 kb/s	Ensure that the BC can be transported transparently through the network.		
11317N		BC=V110/X30 rate adaption syncronous user rate 56 kb/s	Ensure that the BC can be transported transparently through the network.		
11319		LLC=V110/X30 rate adaption syncronous user rate 9,6 kb/s	Ensure that the LLC can be transported transparently through the network.		
11320N		LLC=V110/X30 rate adaption syncronous user rate 56 kb/s	Ensure that the LLC can be transported transparently through the network. Note: This test is not described by EURESCOM. The test is added by TN.		

Table V.8-5.3 Bearer service = 64 kb/s unrestricted (continued)

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
11322		BC=V110/X30 rate adaption asyncronous user rate 9,6 kb/s	Ensure that the BC can be transported transparently through the network.		
11323N		BC=V110/X30 rate adaption asyncronous user rate 56 kb/s	Ensure that the BC can be transported transparently through the network.		
11325		LLC=V110/X30 rate adaption asyncronous user rate 9,6 kb/s	Ensure that the LLC can be transported transparently through the network.		
11326N		LLC=V110/X30 rate adaption asyncronous user rate 56 kb/s	Ensure that the LLC can be transported transparently through the network. Note: This test is not described by EURESCOM. The test is added by TN.		

Table V.8-5.4 ISDN-ISDN/Basic_call/Unsuccessful

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
12001		Calling to an unallocated number	Ensure that the network can transport the cause value #1 to the calling user.		
12002		Called subscriber busy	Ensure that the network can transport the cause value #17 to the calling user.		
12003		No user responding	Ensure that the network can transport the cause value #18 to the calling user.		
12004		No answer from called party (user alerted)	Ensure that the network can transport the cause value #19 to the calling user.		
12005		Called user rejects the call	Ensure that the network can transport the cause value #21 to the calling user.		
12006		Called terminal not connected (destination out of order)	Ensure that the network can transport the cause value #27 to the calling user.		
12007		Calling and called party belongs to different CUG. Called access is with incoming access not allowed.	Ensure that the network can transport the cause value #87 (or #29) to the calling user.		
12008		Calling and called party belongs to different CUG. Calling access is with outgoing access not allowed.	Ensure that the network can transport the cause value #87 (or #29) to the calling user.		
12009		Called user not compatible	Ensure that the network can transport the cause value #88 to the calling user.		
12010		Calling party clears before answer from called party	Ensure that the network can transport the cause value #16 to the called user.		

Table V.8-5.5 ISDN-ISDN/Supplementary services

ID	Network X ID	Supplementservice	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
20101		CLIP	CLI provided by the user, with calling party subaddress.	Ensure that the calling party number and calling party subaddress information elements are delivered correctly to the called party		
20102		CLIP	CLI provided by the network, without calling party subaddress.	Ensure that the calling party number information elements are delivered correctly to the called party		
20201N		CLIR	CLI provided by the user, with calling party subaddress.	Ensure that the calling party number and calling party subaddress are not sent to other network		
20202		CLIR	CLI provided by the network, wthout conneced subaddress, override category of the called side is on.	Ensure that the calling party number informaton element is delivered correctly to the called party.	CLI will be discarded by TN ISC when presen. restri.	
20301		COLP	COL provided by the user, with called party subaddress.	Ensure that the connected party number and connected party subaddress information elements are delivered correctly to the calling party		
20302		COLP	COL provided by the network, without called party subaddress.	Ensure that the connected party number information elements are delivered correctly to the calling party		
20401N		COLR	COL provided by the user, with called party subaddress.	Ensure that the connected party number and connected party subaddress are not sent to other network		
20402		COLR	COL provided by the network, wthout conneced subaddress, override category of the calling side is on.	Ensure that the connected number informaton element is delivered correctly to the calling party.		COL will be discarded by TN ISC when present. restr.
20501		CUG	The calling party and the called party belongs to the same CUG.	Ensure that call establishment is possible		

Table V.8-5.5 ISDN-ISDN/Supplementary services (continued).

ID	Network X ID	Supplementservice	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
20502		CUG	The calling party belongs to a CUG with outg. access allowed. The called party belongs to another CUG with incoming access allowed..	Ensure that call establishment is possible		
20503		CUG	The calling party belongs to a CUG with outg. access allowed. The called party is not a CUG subscriber.	Ensure that call establishment is possible		
20601		SUB	Called party subaddress	Ensure that the called party subaddress is delivered correctly to the called party		
20701		TP	Suspension/Resumption.	Ensure that the remote user is notified of the call suspension and resumption		
20801		UUS	UUS 1 implicit, SETUP.	Ensure that the network can transport user information to the remote user in a SETUP message.		
20802		UUS	UUS 1 implicit, ALERTING	Ensure that the network can transport user information to the remote user in a ALERTING message. Applicable only to point-to-point configurations.		
20803		UUS	UUS 1 implicit, CONNECT.	Ensure that the network can transport user information to the remote user in a CONNECT message.		
20804		UUS	UUS 1 implicit, DISCONNECT.	Ensure that the network can transport user-to-user information to the remote user in a DISCONNECT message.		

ISDN-PSTN /Basic_call/Successful

Table V.8-5.6 Bearer service = speech

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
31101		No HLC, en-block sending	Ensure that call establishment using en-block sending is performed correctly. Progress indicator has to be checked.	Covered by test 11301	Covered by test 11301
31102		No HLC, overlap sending	Ensure that call establishment using overlap sending is performed correctly. Progress indicator has to be checked.	Covered by test 11302	Covered by test 11302
31103		No HLC, calling party clears after answer	Ensure that the clearing procedure is performed correctly.		
31104		No HLC, called party clears after answer	Ensure that the clearing procedure is performed correctly.		
31105		HLC = telephony	Ensure that call estblishment can be done with HLC		

Table V.8-5.7 Bearer service = 3.1 kHz audio

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
31201		No HLC, en-block sending	Ensure that call establishment using en-block sending is performed correctly.	Covered by test 11301	Covered by test 11301
31202		No HLC, overlap sending	Ensure that call establishment using overlap sending is performed correctly.	Covered by test 11302	Covered by test 11302
31203		No HLC, calling party clears after answer	Ensure that the clearing procedure is performed correctly.		
31204		No HLC, called party clears after answer	Ensure that the clearing procedure is performed correctly.		
31205		HLC = telefax group 2/3	Ensure that call establishment can be done with HLC		
31206		LLC = voice band data via modem	Ensure that call establishment can be done with LLC		

Table V.8-5.7 ISDN -PSTN /Basic_call/Unsuccessful

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
32001		Called subscriber busy	Ensure that the network can transport the cause value #17 to the calling user		
32002		Calling to an unallocated number	Ensure that the network can transport the cause value #1 to the calling user		
32003		Calling party clears before answer from called party	Ensure that the call is cleared		
32004		Q.118 timer expires: no answer from called party	Ensure that the network can transport the cause value #18 or #19 to the calling user		
52006		CUG-member call outside this CUG, with outgoing access not allowed	Ensure that the network can transport the cause value #29 to the calling user		

Table V.8-5.8 PSTN-ISDN /Basic_call/Successful

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
51001		Telephone call.	Ensure that call is deliverd to the called party with the bearer service audio		
51002		Telephone call,calling party clears after answer	Ensure that the clearing procedure is performed correctly		
51003		Telephone call,calling party clears after answer	Ensure that the clearing procedure is performed correctly		

Table V.8-5.9 PSTN-ISDN /Basic_call/Unsuccessful

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
52001		Called subscriber busy	Ensure that the calling party gets in-band information that the called user is busy		
52002		Called terminal is not connected	Ensure that the call is cleared		
52003		Calling to an unallocated number	Ensure that the calling party gets in-band information that the called number is unallocated		
52004		Calling party clears before answer from called party	Ensure that the call is cleared		
52005		Q.118 timer expires: no answer from called party	Ensure that the call is cleared		
52006		Calling a CUG subscriber with incoming access not allowed	Ensure that the call is cleared		

Table V.8-5.10 APPLICATION TESTS:

Application	TN equipment	Netw.X equipment	Result TN to Netw.X	Result Netw.X to TN	Comments
Videophone	Tandberg Vision				
Telefax Group 4	Ricoh 7000L				
	Ascom Crystal				
	Philips TA Multi				

Table V.8-5.11 BER TEST:

Test Direction	Start Date&Time	Test Duration	Bit Error Rate	Result (ok/nok)	Comments
TN to Network X					
Network X to TN					

Table V.8-5.12 CALL SETUP DELAY / PROPAGATION DELAY:

Call Direction	Call Setup Delay	Propagation Delay
TN to Network X		Test not supported by TN
Network X to TN		

ISDN-ISDN /Basic_call with carrier selection prefix/Successful

Table V.8-5.13 Bearer service = speech

ID	Network X ID	Parameters	Purpose	Result TN to Netw.X (A_xxxxx)	Result Netw.X to TN (B_xxxxx)
1		No HLC, en-block sending (15xx abcdefgh)	Ensure that call establishment for national calls with carrier selection prefix is performed correctly.		
2		No HLC, overlap sending (15xx 00 CCxxxx...)	Ensure that call establishment for international calls with carrier selection prefix is performed correctly.		