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SERIES Q: SWITCHING AND SIGNALLING

Specifications of Signalling System No. 7 – Test Specification

MTP LEVEL 2 TEST SPECIFICATION

Reedition of CCITT Recommendation Q.781 published in the Blue Book, Fascicle VI.9 (1988)

NOTES

- 1 CCITT Recommendation Q.781 was published in Fascicle VI.9 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).
- In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Recommendation Q.781

MTP LEVEL 2 TEST SPECIFICATION

1 Introduction

This Recommendation contains a set of detailed tests of signalling system No. 7 MTP level 2 protocol. These tests intend to validate the protocol specified in Recommendation Q.703.

This Recommendation conforms to Recommendation Q.780 which describes the basic rules of the Test Specification. In addition the conditions which are specific to level 2 tests are described in the following sections.

2 General principles of level 2 tests

2.1 Presentation of test descriptions

The level 2 tests aim at testing the level 2 protocol conformance in a given implementation.

Each test description indicates in the "type of test" column; "Validation" (VAT) or "Validation" (VAT) and "compatibility" (CPT).

Although signal units are transmitted and received continuously on level 2, only the signal units which cause and/or indicate the changes of level 2 status are shown in the EXPECTED SIGNAL UNIT SEQUENCE column of each test description.

2.2 Presentation of the test list

These tests as a whole, aim at a complete validation of the level 2 protocol without redundancies. Each test is described as simply as possible to check precisely each elementary function of the protocol, which is referred in the columns "reference", "title" and "sub-title" of each test description.

This list is presented in the form of a succession of tests. The presentation order is essentially functional. However, the operator performing these tests may change this order, taking into account some other practical criteria such as: use pre-test conditions to order the list, the end of a given test may be the pre-test condition of another test.

3 Test configuration

A single link will be used for level 2 tests. Figure 1/Q.781 shows a single link between SP A and SP B. Test specifications are written to test the level 2 of the SP A.

4 Test environment

See Recommendation Q.780, § 6.2.

5 Test list

Note - Compatibility test items are indicated in this list by an asterisk (*).

- The abbreviations *PO*, *LPO*, *RPO*, *EM* and *EDA* are used for processor outage, local processor outage, remote processor outage, emergency and expected delay of acknowledgement respectively.
- 1 Link State Control-Expected signal units/orders (Figures 8/Q.703 and 9/Q.703)
- * 1.1 Initialisation (Power-up)
- 1.2 Timer T2
 - 1.3 Timer T3
 - 1.4 Timer T1 and T4 (Normal)

- 1.5 Normal alignment-correct procedure (FISU)
 - 1.6 Normal alignment-correct procedure (MSU)
 - 1.7 SIO received during normal proving period
 - 1.8 Normal alignment with PO set (FISU)
 - 1.9 Normal alignment with PO set (MSU)
 - 1.10 Normal alignment with PO set and clear
 - 1.11 Set RPO when "Aligned not ready"
 - 1.12 SIOS received when "Aligned not ready"
 - 1.13 SIO received when "Aligned not ready"
 - 1.14 Set and clear LPO when "Initial alignment"
 - 1.15 Set and clear LPO when "Aligned ready"
 - 1.16 Timer T1 in ""Aligned not ready" state
 - 1.17 No SIO sent during normal proving period
 - 1.18 Set and cease emergency prior to "start alignment"
- 1.19 Set emergency while in "not aligned state"
 - 1.20 Set emergency when "aligned"
 - 1.21 Both ends set emergency
 - 1.22 Individual end sets emergency
 - 1.23 Set emergency during normal proving
 - 1.24 No SIO sent during emergency alignment
 - 1.25 Deactivation during initial alignment
 - 1.26 Deactivation during aligned state
 - 1.27 Deactivation during aligned not ready
 - 1.28 SIO received during link in service
 - 1.29 Deactivation during link in service
 - 1.30 Deactivation during LPO
 - 1.31 Deactivation during RPO
- 1.32 Deactivation during the proving period
 - 1.33 SIO received instead of FISUs
 - 1.34 SIOS received instead of FISUs
 - 1.35 SIPO received instead of FISUs
 - 2 Link State Control-Unexpected signal units/orders (Figure 8/Q.703)
 - 2.1 Unexpected signal units/orders in "Out of service" state
 - 2.2 Unexpected signal units/orders in "Not aligned" state
 - 2.3 Unexpected signal units/orders in "Aligned" state
 - 2.4 Unexpected signal units/orders in "Proving" state
 - 2.5 Unexpected signal units/orders in "Aligned ready" state
 - 2.6 Unexpected signal units/orders in "Aligned not ready" state
 - 2.7 Unexpected signal units/orders in "In service" state
 - 2.8 Unexpected signal units/orders in "Processor outage" state

- 3 Transmission failure (Figure 8/Q.703)
 - 3.1 Link aligned ready (Break Tx path)
 - 3.2 Link aligned ready (Corrupt FIBs)
 - 3.3 Link aligned not ready (Break Tx path)
 - 3.4 Link aligned not ready (Corrupt FIBs)
 - 3.5 Link in service (Break Tx path)
 - 3.6 Link in service (Corrupt FIBs)
 - 3.7 Link in processor outage (Break Tx path)
 - 3.8 Link in processor outage (Corrupt FIBs)
- 4 Processor Outage Control (Figure 10/Q.703)
 - 4.1 Set and clear LPO while link in service
 - 4.2 RPO during LPO
 - 4.3 Clear LPO when "Both processor outage"
- 5 SU Delimitation, Alignment, Error Detection and Correction (Figures 11/Q.703 and 12/Q.703)
 - 5.1 More than seven "1"s between MSU opening and closing flags
 - 5.2 Greater than maximum signal unit length
 - 5.3 Below minimum signal unit length
 - 5.4 Reception of single and multiple flags between FISUs
 - 5.5 Reception of single and multiple flags between MSUs
- 6 SUERM Check (Figure 18/Q.703)
 - 6.1 Error rate of 1 in 256-Link remains in service
 - 6.2 Error rate of 1 in 254-Link into out of service
 - 6.3 Consecutive corrupted SUs
 - 6.4 Time controlled break of the link
- 7 AERM check (Figure 17/Q.703)
 - 7.1 Error rate below the normal threshold
 - 7.2 Error rate at the normal threshold
 - 7.3 Error rate above the normal threshold
 - 7.4 Error rate at the emergency threshold
- 8 Transmission and reception control (Basic) (Figures 13/Q.703 and 14/Q.703)
 - 8.1 MSU transmission and reception
 - 8.2 Negative acknowledgement of MSU
 - 8.3 Check RTB full
 - 8.4 Single MSU with erroneous FIB
 - 8.5 Duplicated FSN
 - 8.6 Erroneous retransmission-Single MSU
 - 8.7 Erroneous retransmission-Multiple FISUs
 - 8.8 Single FISU with corrupt FIB
 - 8.9 Single FISU prior to RPO being set
 - 8.10 Abnormal BSN-Single MSU

- 8.11 Abnormal BSN-Two consecutive FISUs
- 8.12 Excessive delay of acknowledgement
- 8.13 Level 3 Stop Command
- 9 Transmission and reception control (PCR) (Figures 15/Q.703 and 16/Q.703)
 - 9.1 MSU transmission and reception
 - 9.2 Priority control
 - 9.3 Forced retransmission with the value N1
 - 9.4 Forced retransmission with the value N2
 - 9.5 Forced retransmission cancel
 - 9.6 Repetition of forced retransmission
 - 9.7 MSU transmission while RPO set
 - 9.8 Abnormal BSN-Single MSU
 - 9.9 Abnormal BSN-Two MSUs
 - 9.10 Unexpected FSN
 - 9.11 Excessive delay of acknowledgement
 - 9.12 FISU with FSN expected for MSU
 - 9.13 Level 3 Stop Command
- 10 Congestion Control (Figure 19/Q.703)
 - 10.1 Congestion abatement
 - 10.2 Timer T7
 - 10.3 Timer T6

6 Test descriptions

TEST NUMBER: 1.1	PAGE: 1 OF 1		
REFERENCE: Q.703 § 7 STD: Fig. 8; Fig. 12; Fig. 13			
TITLE: Link State Control - Expected signal units/orders			
SUB TITLE: Initialization (Power-up)			
PURPOSE: To check that the No. 7 terminal equipment enters the correct state on	power-up		
PRE-TEST CONDITIONS: Line equipment - ON; No. 7 equipment - OFF			
CONFIGURATION: 1	TYPE OF TEST: VAT, CPT		
EXPECTED SIGNAL UNIT SEQUENCE:			
SP B	SP A		
Link Link			
1 - 0 SIOS>			
< 1	: Power ON 0 SIOS		
TEST DESCRIPTION			
 Check link enters correct state. At "Power - On" or Initialization the FIB, BIB, FSN, and BSN shall be a FIB = BIB = 1: FSN = BSN = 127 (HEX 7F). Repeat test in reverse direction. 	s follows:		

TEST NUMBER: 1.2	PAGE: 1 OF 1
REFERENCE: Q.703 § 7 STD: Fig. 8; Fig. 9, Fig. 11, Fig. 13; F	ig. 14
TITLE: Link State Control - Expected signal units/orders	
SUB TITLE: Timer T2	
PURPOSE: To check "Not Aligned" Timer T2	
PRE-TEST CONDITIONS: Link out of service	
CONFIGURATION: 1	TYPE OF TEST: VAT, CPT
EXPECTED SIGNAL UNIT SEQUENCE:	
SP B	SP A
Link	Link
1 - 0 SIOS>	
<	1 – 0 SIOS
<	: start 1 - 0 SIO
	Т2
<	1 0 SIOS
TEST DESCRIPTION	
1. Timer T2 shall be in the range 5 secs to 150 secs.	
1. Timer 12 shall be in the range 5 secs to 150 secs.	

TEST NUMBER: 1.3		PAGE: 1 OF 1		
REFERENCE: Q.703 § 7	REFERENCE: Q.703 § 7 STD: Fig. 9; Fig. 14			
TITLE: Link State Control - Exp	TITLE: Link State Control - Expected signal units/orders			
SUB TITLE: Timer T3				
PURPOSE: To check "Aligned" Ti	mer T3			
PRE-TEST CONDITIONS: Link of	out of service			
CONFIGURATION: 1		TYPE OF TEST: VAT		
EXPECTED SIGNAL UNIT SEQU	IENCE:			
SP B		SP A		
Link		Link		
1 - 0 SIOS	<>	1 – 0 SIOS		
1 - 0 SIO	<>	: start 1 0 SIO		
	<	1 0 SIN T3		
	<	1 – 0 SIOS		
		·		
TEST DESCRIPTION				
1. Timer T3 shall be in the r	range 1 sec to 1.5 secs.			
<u> </u>				

TEST NUMBER: 1.4		PAGE: 1 OF 1
REFERENCE: Q.703 §	7 STD: Fig. 8; Fig. 9	
TITLE: Link State Con	trol - Expected signal units/orders	
SUB TITLE: Timer T1	& Timer T4 (Normal)	
PURPOSE: To check "	Aligned ready" Timer T1 and "Proving	period" Timer T4 (Normal)
PRE-TEST CONDITION	JS: Link out of service	
CONFIGURATION: 1		TYPE OF TEST: VAT
EXPECTED SIGNAL U	NIT SEQUENCE:	
SP B		SP A
Link		Link
1 – 0 SIOS	<	1 0 5105
	<- 	: start
1 0 SIO	<	-
1 - 0 SIN		
	<	
		T1
	<	1 – 0 SIOS
		_
TEST DESCRIPTION		
1. At 64 kbit/s Tim 40 secs to 50 sec	ner T4 shall be in the range 7.5 secs to 9.5 es.	secs (nominally 8.2 secs) and Timer T1 shall be in the range
2. At 4.8 kbit/s Tir	ner T4 shall be in the range 100 secs to 12 to 600 secs.	20 secs (nominally 110 secs) and Timer T1 shall be in the
	ner T4 shall be in the range 100 secs to 12 to 600 secs.	20 secs (nominally 110 secs) and Timer T1 shall be in the in the

TEST N	UMBER: 1.5			PAGE: 1 OF 1
REFERENCE: Q.703 § 7 STD: Fig. 8; Fig. 9				
TITLE:	TITLE: Link State Control - Expected signal units/orders			
SUB TI	TLE: Normal alignment — co	orrect procedure (FISU)		
PURPO	SE: To check normal alignme	nt procedure	-	
PRE-TE	ST CONDITIONS: Link out	of service		
CONFI	GURATION: 1			TYPE OF TEST: VAT, CPT
EXPEC	TED SIGNAL UNIT SEQUE	NCE:		
	SP B			SP A
Link			Link	
		<	1 –	0 SIOS
1 -	0 SIOS	>		
		<	1 -	: start 0 SIO
1 —	0 SIO	>	•	V 510
		<	1 —	0 SIN
1 -	0 SIN	>		
1 -	0 FISU	<>	1 —	0 FISU
	1100	ŕ		
TEST D	DESCRIPTION			
1.	Start normal alignment proc	edure.		
2.	Check link aligns and enters	"In service" state.		<u> </u>
3.	Check that "In service" state	is maintained.		

TEST NUMBER: 1.6	PAGE: 1 OF 1			
REFERENCE: Q.703 § 7 STD: Fig. 8; Fig. 9				
TITLE: Link State Control - Expected signal units/orders				
SUB TITLE: Normal alignment correct procedure (MSU)				
PURPOSE: To check normal alignment procedure				
PRE-TEST CONDITIONS: Link out of service				
CONFIGURATION: 1	TYPE OF TEST: VAT			
EXPECTED SIGNAL UNIT SEQUENCE:				
SP B	SP A			
Link	Link			
	1 – 0 SIOS			
1 - 0 SIOS>	; start			
<> 1 - 0 SIO>	1 – 0 SIO			
<- 	1 – 0 SIN			
1 - 0 SIN>	1 – 0 FISU			
1 - 0 MSU>	1 – 0 FISU			
TEST DESCRIPTION				
 Start normal alignment procedure. Check link aligns and enters "In service" state. 				
3. Check that "In service" state is maintained.				
	<u>, </u>			

TEST NUMBER: 1.7			PAGE: 1	OF 1
REFERENCE: Q.703 §§ 7, 10.3 STD: Fig. 9; Fig. 17				
TITLE: Link State Control - Expec	TITLE: Link State Control - Expected signal units/orders			
SUB TITLE: SIO received during no	rmal proving period			
PURPOSE: To test the response to the	ne reception of an SIO during	the normal provi	ng period.	
PRE-TEST CONDITIONS: Link ou	t of service			
CONFIGURATION: 1			TYPE OF	TEST: VAT
EXPECTED SIGNAL UNIT SEQUE	NCE:	4/1	.	
SP B			SP	A
Link		Link		
1 – 0 SIOS	<	1 - >	0 SI	ios
			: st	
1 – 0 SIO		-	0 \$1	10
1 – 0 SIN	<	-	0 SI	N T4 Stopped
1 - 0 SIN (one only) 1 - 0 SIN		>	0	SIN T4 (Pn)
	<	1 -	0	FISU
TEST DESCRIPTION				
Send an SIO at B during not 2. Check that new normal pro				

TEST	NUMBER: 1.8	-	· <u>-</u>	PAGE: 1 OF 1	_
REFE	RENCE: Q.703 §§ 7, 8	STD: Fig. 8			
TITLE	: Link State Control - Ex	pected signal units/orders	,	-	
SUB T	ITLE: Normal alignment v	vith PO set (FISU)			
PURP	OSE: To check the response	e following normal alignment when PO	has been se	t	
PRE-T	EST CONDITIONS: Link	out of service			
CONF	IGURATION: 1			TYPE OF TEST: VAT	
EXPE	CTED SIGNAL UNIT SEQ	UENCE:			
ļ 	SP B			SP A	
Link			Link		
1 -	0 SIOS	<>	1 - 0	SIOS	
				: set LPO	
		< 	1 - 0	: start SIO	
1 –	0 SIO	>	. •	510	
1 -	0 SIN	<>	1 - 0	SIN	
1 -	0 FISU	<>	1 - 0	SIPO	
		<	1 - 0	SIPO	
					į
					,
TEST C	DESCRIPTION				
	JESCRIPTION		· •·		8
1.	i e e e e e e e e e e e e e e e e e e e	ent is carried out with PLO set at A.			
2.		ed when aligned, and that A stays in "pr	rocessor out	age" state.	
3.	Repeat test with LPO set a	at B.			
i					

TEST N	UMBER: 1.9	-	PAGE: 1 OF 1	
REFERENCE: Q.703 §§ 7, 8 STD: Fig. 8				
TITLE:	TITLE: Link State Control - Expected signal units/orders			
SUB TIT	LE: Normal alignment wit	th PO set (MSU)		
PURPOS	SE: To check the response	following normal alignment when PO	has been set	
PRE-TE	ST CONDITIONS: Link o	ut of service		
CONFIC	GURATION: 1		TYPE OF TEST: VAT	
EXPECT	TED SIGNAL UNIT SEQU	ENCE:		
	SP B		SP A	
Link			Link	
į		<	1 – 0 SIOS	
1 – () SIOS	 >	: set LPO	
			: start	
		<	1 0 SIO	
1 - 0) SIO	>		
_ ` `	513			
, ,	a on	<>	1 – 0 SIN	
1 - () SIN	>		
		<	1 - 0 SIPO	
1 - 0) MSU	>		
		<	1 0 SIPO	
TEST D	ESCRIPTION			
1.	Check that normal alignm	ent is carried out with LPO set at A.		
2.	Check that SIPO is return	ed when aligned, and that A stays in "	processor outage" state.	
3.	Repeat test with LPO set a	at B.		
}				

TEST NU	JMBER: 1.10		PAGE: 1 OF 1	
REFERE	NCE: Q.703 §§ 7, 8	STD: Fig. 8		
TITLE:	Link State Control - Ex	spected signal units/orders		
SUB TITI	LE: Normal alignment	with PO set and clear		
PURPOSI	E: To check the respons	e following normal alignment when PO	has been set and cleared	
PRE-TES	T CONDITIONS: Link	out of service		
CONFIGI	URATION: 1		TYPE OF TEST: VAT	
EXPECT	ED SIGNAL UNIT SEQ	UENCE:		-
	SP B		SP A	
Link			Link	
1 - 0	SIOS	<>	1 - 0 SIOS	
			: set LPO	
			: clear LPO : start	
1 - 0	SIO	<>	1 ~ 0 SIO	
1 - 0	SIN	<>	1 - 0 SIN	
1 - 0	FISU	<>	1 ~ 0 FISU	
TEST DES	CRIPTION			
1. C	Check that normal alignm	ant is comised out		
		ent is carried out.		İ
	<i>5</i>			
				ĺ
				1

TEST NUMBER: 1.11	·	PAGE: 1 OF 1		
REFERENCE: Q.703 §§ 7, 8 STD: Fig. 8				
TITLE: Link State Control - Expected s	TITLE: Link State Control - Expected signal units/orders			
SUB TITLE: Set RPO when "Aligned no	t ready"			
PURPOSE: To check the response follow	ing normal alignment when PO has been so	et		
PRE-TEST CONDITIONS: Link out of	service; ability to set PO			
CONFIGURATION: 1		TYPE OF TEST: VAT		
EXPECTED SIGNAL UNIT SEQUENCE	3:			
SP B		SP A		
Link	Link	·		
	1 -	o SIOS		
r - v Blob	>			
: set LPO		: set LPO : start		
<	1 —			
1 – 0 SIO	>			
<	1 -	0 SIN		
1 – 0 SIN	·>			
<	1	0 SIPO		
1 – 0 SIPO	>			
TEST DESCRIPTION				
1. Set LPO at A and B.				
2. Start alignment.				
3. Check that both LPO and RPC	after alignment completes.			

				PAGE: 1 OF 1
REFERI	ENCE: Q.703 §§ 7, 8	STD: Fig. 8	1	
TITLE:	Link State Control - Ex	pected signal units/orders		
SUB TIT	TLE: SIO received when	"Aligned not ready"		
PURPOS	SE: To check the respons	e following normal alignment when PO ha	is been set	t
PRE-TE	ST CONDITIONS: Link	out of service		
CONFIC	GURATION: 1			TYPE OF TEST: VAT
EXPECT	TED SIGNAL UNIT SEQ	UENCE:		
	SP B			SP A
Link			Link	
1 – 0) SIOS	<>	1 - 0) SIOS
				: set LPO : start
1 0) SIO	<>	1 - 0) SIO
1 – 0) SIN	<>	1 - 0) SIN
1 0) SIO	<>	1 - 0) SIPO
		<	1 - 0	SIOS
TEST D	ESCRIPTION			
1.	Soon after alignment cor	npletes, A enters "Aligned not ready".		
2.	Before alignment comple	tes at B, SIO is sent to A.	-	
3.	Check that, on reception	of SIO, A enters "Out of service" state.		
4.	Repeat test with LPO set			

TEST NUMBER: 1	.14	PAGE: 1 OF 1
REFERENCE: Q.7	03 §§ 7, 8 STD: Fig. 8	
TITLE: Link State	Control - Expected signal units/orders	,
SUB TITLE: Set an	d clear LPO when "Initial alignment"	
PURPOSE: To chec	k normal alignment with PO set and clear during "Initial	alignment"
PRE-TEST CONDIT	TONS: Link out of service	
CONFIGURATION	: 1	TYPE OF TEST: VAT
EXPECTED SIGNA	L UNIT SEQUENCE:	
SP	В	SP A
Link		Link
	<	1 – 0 SIOS
1 - 0 SIOS	···>	
	<	: start 1 – 0 SIO
1-0 SIO	>	
	<	1-0 SIN
4 0		: set LPO
1-0 SIN	>	: clear LPO
	<	1 – 0 FISU
1-0 FISU		
	<	1 – 0 FISU
TEST DESCRIPTIO	N	
1. Set LPO at	A during "Initial alignment" state.	
	emains in "Initial alignment" state.	
3. Clear LPO	before alignment completes at A.	
4. Check A e	nters "In service" state after normal alignment.	
5. Repeat the	test at B.	

TEST N	IUMBER: 1.15		1	PAGE: 1 OF 1
REFER	ENCE: Q.703 §§ 7, 8	STD: Fig. 8	•	
TITLE:	Link State Control - Exp	ected signal units/orders		
SUB TI	TLE: Set and clear LPO wh	nen "aligned ready"		
PURPO	SE: To test the response to LPO is cleared.	LPO when "aligned ready" and to ensu	re that the a	aligned ready state resumes when
PRE-TE	EST CONDITIONS: Link of	out of service		
CONFI	GURATION: 1	1 Spring and de		TYPE OF TEST: VAT
EXPEC	TED SIGNAL UNIT SEQU	ENCE:		
	SP B			SP A
Link			Link	
1	0 SIOS	<>	1 - 0	SIOS
			4	: start
1 -	0 SIO	>	1 - 0	SIO
1	0 SIN	<>	1 - 0	SIN
		<	1 - 0	FISU
,				: set LPO
		<	1 - 0	SIPO : wait 5 secs.
				: clear LPO
		<	1 - 0	FISU
TEST D	DESCRIPTION			
1.	Start link at A.			
2.	At "aligned ready" state s (Suppress return of FISUs	et LPO at A. at B to maintain "aligned ready" state).	-	
3.	Clear LPO at A.			
4.	Check A resumes "aligned	ready" state.		

TEST NU	JMBER: 1.16	_	PAGE: 1 OF 1
REFERE	NCE: Q.703 §§ 7, 8	STD: Fig. 8	
TITLE:	Link State Control - Expec	cted signal units/orders	
SUB TIT	LE: Timer T1 in "aligned r	ot ready" state	
PURPOS	E: To test the operation of	Timer T1 when in the "aligned not re	eady" state.
PRE-TES	T CONDITIONS: Link ou	t of service	
CONFIG	URATION: 1		TYPE OF TEST: VAT
EXPECT	ED SIGNAL UNIT SEQUE	NCE:	
	SP B		SP A
Link			Link
		<	1 – 0 SIOS
1 - 0	SIOS	>	
			: set LPO
1 - 0	SIO	<>	: start 1 - 0 SIO
1 - 0	SIN	<>	1-0 SIN
- •	DIIV	<>	1 – 0 SIPO
			T1
		<	1 – 0 SIOS
TEST DES	SCRIPTION		
- 1	Set LPO and start link at A.		
	Check A enters the "aligned		
1	Check A takes the link out of Timer T1 shall be in the ran		
"	Timer II shall be in the fall	ge 40 sees to 50 sees.	

TEST NUMBER: 1.17		PAGE: 1 OF 1
REFERENCE: Q.703 § 7 S	TD: Fig. 9	
TITLE: Link State Control - Expec	ted signal units/orders	
SUB TITLE: No SIO sent during no	ormal proving period	
PURPOSE: To ensure that normal a	lignment still occurs when SIO is omitted	
PRE-TEST CONDITIONS: Link ou	t of Service	
CONFIGURATION: 1		TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUE	ENCE:	
SP B		SP A
Link	Ĭ.	ink
1 – 0 SIOS	<	– 0 SIOS
1 - 0 SIN	<	: start - 0 SIO not aligned
1 – 0 SIN	<	- 0 SIN
	<1	T4 (Pn) - 0 FISU
TEST DESCRIPTION		
1. Check normal alignment of	ccurs with no SIO sent from SP B.	

TEST	NUMB	ER: 1.18		-	PAGE: 1 OF 1
REFE	RENCE	E: Q.703 § 7	STD: Fig. 8		<u> </u>
TITLE	3: Link	State Control - Expe	cted signal units/orders		
SUB 7	TITLE:	Set and cease emergen	cy prior to "start alignment"	<u>.</u>	
PURP	OSE:	To test the normal prov	ing period is employed having "en	nergency" set a	and cleared
PRE-T	EST CO	ONDITIONS: Link ou	at of service		
CONF	IGURA	ATION: 1			TYPE OF TEST: VAT
EXPE	CTED S	SIGNAL UNIT SEQUE	NCE:		
		SP B			SP A
Linl	k			Link	3
1 –	0	SIOS	<>	1 – 0	sios
		5105			: set Em
					: set Em
					: start
			<	1 - 0	SIO
1 -	0	SIO	>		
			<	1 - 0	SIN
1 -	0	SIN	>]
					T4 (Pn)
			<	1 - 0	FISU
TEST I	DESCRI	PTION	· · · · · · · · · · · · · · · · · · ·		
1.	Chec	k emergency set and cle	ared prior to start of alignment.		
2.		k normal proving perio			
					ŀ

TEST N	UMBER: 1.19		PAGE: 1 OF 1
REFER	ENCE: Q.703 § 7	STD: Fig. 8; Fig. 9	
TITLE:	Link State Control - Ex	pected signal units/orders	
SUB TI	TLE: Set emergency while	in "not aligned state"	
PURPO	SE: To test that emergence	y proving can be set during normal initia	l alignment.
PRE-TE	ST CONDITIONS: Link	out of service	
CONFI	GURATION: 1		TYPE OF TEST: VAT, CPT
EXPEC	TED SIGNAL UNIT SEQ	UENCE:	
	SP B		PS A
Link			Link
		<	1 – 0 SIOS
1 -	0 SIOS	<u></u> >	; start
		<	1 - 0 SIO
1 -	0 SIO	<u></u> >	: set EM
	0 310	<	1 - 0 SIE
1 -	0 SIN	>	Ţ
			T4 (Pe)
		<	1 – 0 FISU
TEST I	DESCRIPTION		ALL
1.	Check that emergency p	proving period is used after set EM during	normal initial alignment.
2.	The timing of this test-is received. (i.e. during Tir		start command has been given and before SIO is
3.	, ,	shall be in the range 0,4 sec to 0,6 sec (not	ninally 0,5 sec).
4.	At 4,8 kbit/s, Timer T4	shall be in the range 6 secs to 8 secs (non	ninally 7 secs).

TEST N	NUMBER: 1.20		PAGE: 1 OF 1
REFER	ENCE: Q.703 § 7 S	TD: Fig. 9	
TITLE:	Link State Control ~ Expec	ted signal units/orders	
SUB TI	TLE: Set emergency when "a	ligned"	
PRE-T	EST CONDITIONS: To test t	hat emergency proving period is used	when emergency set prior to receiving SIN
CONFI	GURATION: 1		TYPE OF TEST: VAT
EXPEC	TED SIGNAL UNIT SEQUE	NCE:	
	SP B		SP A
Link			Link
1 –	0 SIOS	<>	1 – 0 SIOS
1 -	0 SIO	<>	: start 1 - 0 SIO
•	v 510	<	1 – 0 SIN
1	0 SIN	<>	: set EM 1 - 0
		<	1 0 FISU
TEST C	PESCRIPTION		
1.	Check that emergency provi	ng period is used after SIE sent during	g "aligned" state
2.			has been sent but before Timer T3 expires.

TEST NUMBER: 1.21		PAGE: 1 OF 1
REFERENCE: Q.703 § 7 S	TD: Fig. 8; Fig. 9	
TITLE: Link State Control - Expec	cted signal units/orders	
SUB TITLE: Both ends set emergene	су	
PURPOSE: To check the emergency	alignment procedure and Timer T4 (Pe)	
PRE-TEST CONDITIONS: Link ou	t of service	
CONFIGURATION: 1		TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUE	NCE:	
SP B		SP A
Link		Link
1 – 0 SIOS	<>	I – 0 SIOS
	·	: set EM
1 – 0 SIO		: start - 0 SIO - 0 SIE
1 - 0 SIE	>	T4 (Pe)
	<	- 0 FISU
		74
TEST DESCRIPTION		<u> </u>
1. Check correct emergency ali	gnment procedure is performed.	

TEST N	NUMBER: 1.22			PAGE: 1 OF 1	
REFER	REFERENCE: Q.703 § 7 STD: Fig. 9				
TITLE:	Link State Control - Ex	pected signal units/orders			
SUB TI	TLE: Individual end sets	emergency			
PURPO	OSE: To check emergency a	alignment procedure, Emergency set at the	he other en	d .	
PRE-TI	EST CONDITIONS: Link	out of service			
CONFI	GURATION: 1			TYPE OF TEST: VAT	
EXPEC	TED SIGNAL UNIT SEQ	JENCE:			
	SP B			SP A	
Link			Link		
			1 - 0	o sios	
1 -		>			
		<	1 - (: start	
1,	0 SIE	~>	1 (O SIO	
		<	1 – 0	1	
		<	1 – (T4 (Pe)	
		\	1 – () FISU	
TEST D	DESCRIPTION				
1.	Emergency alignment set	at B.	· • • ·		
2.	Start alignment at A.				
3.	Check that alignment occ	urs with the emergency proving period.			

TEST NU	JMBER: 1.23		PAGE: 1 OF 1
REFERE	NCE: Q.703 § 7	STD: Fig. 9	
TITLE:	Link State Control -	Expected signal units/orders	
SUB TIT	LE: Set emergency d	uring normal proving	
PURPOS	E: To test that setting	g emergency during normal proving s	stops normal proving and starts the emergency proving
PRE-TES	ST CONDITIONS: L	ink out of service	
CONFIG	URATION: 1		TYPE OF TEST: VAT
EXPECT	ED SIGNAL UNIT S	EQUENCE:	
	SP B		SP A
Link			Link
1 - 0	SIOS	<	
		<	: start 1 - 0 SIO
1 — 0		<	1 – 0 SIN
1 - 0	SIN	<	: set EM
1 - 0	SIN		
		<	1 – 0 FISU
TEST D	ESCRIPTION		
1.	Set emergency during	g normal proving period at A.	
2.	Check A sends SIE.		
3.	Repeat test in reverse	e direction.	

TEST N	NUMBER: 1.24			PAGE: 1 OF 1
REFER	RENCE: Q.703 § 7	STD: Fig. 9	, <u>, , , , , , , , , , , , , , , , , , </u>	
TITLE:	: Link State Control - Expe	cted signal units/orders		
SUB TI	ITLE: No SIO sent during e	mergency alignment	•47	
PURPO	OSE: To ensure that emergen	cy alignment still occurs when SIE is	received fol	lowing SIOS
PRE-TI	EST CONDITIONS: Link of	ut of service	•	
CONFI	GURATION: 1	** <u> </u>		TYPE OF TEST: VAT
EXPEC	TED SIGNAL UNIT SEQUI	ENCE:		
	SP B			SP A
Link			Link	
		<	1 – 0) SIOS
1	0 SIOS	~ ~~~ ~~>		
				: set EM : start
		<	1 - 0	
1 –	0 SIE	>		
		<	1 - 0	SIE
				T4 (Pe)
		<	1 - 0	FISU
1184				
TEST D	PESCRIPTION		*	
1.	Set emergency and start lin	k at A	· ·	·
2.	A receives SIE after sendin	g SIO.		
3.	Check that link aligns OK	after emergency proving.		

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1.

TEST NUMBER: 1.26						PAGE: 1 OF 1
REFERENCE: Q.703 § 7 STD: Fig. 8; Fig. 9						
TITLE	: Link	State C	Control - Expec	sted signal units/orders		The state of the s
SUB T	SUB TITLE: Deactivation during aligned state					
PURPOSE: To test the response to the receipt of the stop command while in the initial alignment state (initial alignment is aligned state).						
PRE-T	EST CO	ONDIT	IONS: Link ou	t of service		
CONF	IGURA	TION:	1		***	TYPE OF TEST: VAT
EXPEC	CTED S	IGNAI	L UNIT SEQUE	NCE:		I
		SP	В			SP A
Link					Link	
1 –	0	SIOS		<	•	0 SIOS
1 —	0	SIO		<> <>	· >	
				<	- 1 ~)	: stop
TEST D	DESCR	IPTION	1			·
1.	Chec	k that	alignment ceases	after STOP command given.		
2.	The	stop co	mmand must be	issued before timer T3 expires.		
3.	Time	er T3 sh	all be in the ran	ge 1 sec to 1.5 secs.		
<u>.</u> .		_				

TEST N	NUMBER: 1.27		PAGE: 1 OF 1		
REFER	ENCE: Q.703 §§ 7, 8	STD: Fig. 8			
TITLE: Link State Control - Expected signal units/orders					
SUB TITLE: Deactivation during aligned not ready					
PURPOSE: To check the response following normal alignment when PO has been set					
PRE-TEST CONDITIONS: Link out of service					
CONFI	GURATION: 1	TYPE OF TEST: VAT			
EXPEC	TED SIGNAL UNIT SEQ	UENCE:	-		
	SP B		SP A		
Link			Link		
1 -	0 SIOS	<>	1 0 SIOS		
			: set LPO : start		
1 —	0 SIO	<>	1 – 0 SIO		
1	0 SIN	< >	1 - 0 SIN		
		<	1 - 0 SIPO		
		<	: stop 1 0 SIOS		
TEST DESCRIPTION					
1.	Soon after alignment completes, A enters "Aligned not ready".				
2.	Before alignment completes at B, stop command is given at A.				
3.	Check that A enters "Out of service" state.				
4.	Repeat test with LPO set	at B.			

TEST NUMBER: 1.28	PAGE: 1 OF 1					
REFERENCE: Q.703 § 7 STD: Fig. 8; Fig. 14	REFERENCE: Q.703 § 7 STD: Fig. 8; Fig. 14					
TITLE: Link State Control - Expected signal units/orders						
SUB TITLE: SIO received during link in service						
PURPOSE: To check the deactivation of a signalling link from the "In Serv	PURPOSE: To check the deactivation of a signalling link from the "In Service" state.					
PRE-TEST CONDITIONS: Link in service						
CONFIGURATION: 1	TYPE OF TEST: VAT					
EXPECTED SIGNAL UNIT SEQUENCE:						
SP B	SP A					
Link	Link					
1 - 0 FISU>						
<> 1 - 0 SIO>	1 — 0 FISU					
< 	1 – 0 SIOS					
TEST DESCRIPTION						
1. SIO is sent to A during link in service. 2. Check that an "in service" link can be taken out of service at A						
2. Check that an "in service" link can be taken out of service at A.						

TEST NUMBER: 1.29	PAGE: 1 OF 1				
REFERENCE: Q.703 § 7 STD: Fig. 8; Fig. 14					
TITLE: Link State Control - Expected signal units/orders					
SUB TITLE: Deactivation during link in service					
PURPOSE: To check the deactivation of a signalling link from the "In service" state	,				
PRE-TEST CONDITIONS: Link in service					
CONFIGURATION: 1	TYPE OF TEST: VAT, CPT				
EXPECTED SIGNAL UNIT SEQUENCE:					
SP B	SP A				
Link Link					
1 - 0 FISU>					
: stop 1 - 0 SIOS	0 SIOS				

TEST NUMBER: 1.30	PAGE: 1 OF 1					
REFERENCE: Q.703 §§ 7, 8 STD: Fig. 10						
TITLE: Link State Control — Expected signal units/orders						
SUB TITLE: Deactivation during LPO	SUB TITLE: Deactivation during LPO					
PURPOSE: To check the response to the	stop command during LPO					
PRE-TEST CONDITIONS: Link in service	ce ce	· · · · · · · · · · · · · · · · · · ·				
CONFIGURATION: 1		TYPE OF TEST: VAT				
EXPECTED SIGNAL UNIT SEQUENCE	:					
SP B		SP A				
Link	Link					
<- 1 – 0 FISU	> 1 - (0 FISU				
	> 1 - (: set LPO SIPO				
<-	1 – C	: stop O SIOS				
TEST DESCRIPTION						
ł	SIPO sent from A, stop command given at A, check link enters out of service state. Repeat test, SIPO sent from B, stop command at B, check link enters out of service state.					

PAGE: 1 OF 1					
PURPOSE: To test the response to the stop command during RPO					
-					
TYPE OF TEST: VAT					
SP A					
0 FISU					
: stop 0 SIOS					
TEST DESCRIPTION					
SIPO received at A, stop command given at A, check link enters out of service state.					
Repeat test, SIPO received at B, stop command given at B, check link enters out of service state.					

TEST NUMBER: 1.32			PAGE: 1 OF 1			
REFERENCE: Q.703 §§ 7, 10.3 STD: Fig. 8; Fig. 9						
TITLE: Link State Control - Exper	cted signal units/orders					
SUB TITLE: Deactivation during th	e proving period					
PURPOSE: To test the response to t	he receipt of SIOS during the proving pe	riod				
PRE-TEST CONDITIONS: Link or	it of service					
CONFIGURATION: 1			TYPE OF TEST: VAT, CPT			
EXPECTED SIGNAL UNIT SEQUE	NCE:	-				
SP B			SP A			
Link		Link				
1 – 0 SIOS	<>	1 – () SIOS			
1 – 0 SIO	<>	1 – (: start			
1 - 0 SIN	<>	1 () SIN			
: stop 1 - 0 SIOS	> <	1 0) SIOS			
TEST DESCRIPTION						
	and of the order of service state when order is received at A during the proving period.					
2. Repeat test, SIOS received a	t B during proving period.					

REFERENCE: Q.703 § 7 STD: Fig. 8	TEST NUMBER: 1.33	PAGE: 1 OF 1	
SUB TITLE: SIO received instead of FISUs PURPOSE: To check the response to the receipt of SIO instead of FISUs in the aligned ready state PRE-TEST CONDITIONS: Link out of service CONFIGURATION: 1 TYPE OF TEST: VAT EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link Link Link 1 - 0 SIOS 1 - 0 SIOS 1 - 0 SIO 1 - 0 SIO 1 - 0 SIN 1 - 0 FISU 1 - 0 FISU 1 - 0 FISU	REFERENCE: Q.703 § 7 STD: Fig. 8		
PURPOSE: To check the response to the receipt of SIO instead of FISUs in the aligned ready state PRE-TEST CONDITIONS: Link out of service CONFIGURATION: 1 TYPE OF TEST: VAT EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link Link Link Link Link Link Link Link Link Link Link Link <th colspa<="" td=""><td>TITLE: Link State Control - Expected signal units/or</td><td>ders</td></th>	<td>TITLE: Link State Control - Expected signal units/or</td> <td>ders</td>	TITLE: Link State Control - Expected signal units/or	ders
PRE-TEST CONDITIONS: Link out of service CONFIGURATION: 1 TYPE OF TEST: VAT EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link 1 - 0 SIOS 1 - 0 SIOS 1 - 0 SIO 1 - 0 SIO 1 - 0 SIN 1 - 0 FISU 1 - 0 FISU	SUB TITLE: SIO received instead of FISUs		
CONFIGURATION: 1 TYPE OF TEST: VAT EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link 1 - 0 SIOS 1 - 0 SIOS 1 - 0 SIO 1 - 0 SIO 1 - 0 SIN 1 - 0 SIN 1 - 0 SIO 1 - 0 FISU	PURPOSE: To check the response to the receipt of SIC	D instead of FISUs in the aligned ready state	
EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link 1 - 0 SIOS : start <	PRE-TEST CONDITIONS: Link out of service		
SP B	CONFIGURATION: 1	TYPE OF TEST: VAT	
Link	EXPECTED SIGNAL UNIT SEQUENCE:		
<pre></pre>	SP B	SP A	
1 - 0 SIOS : start <	Link	Link	
<pre></pre>			
1. Check link enters out of service state when SIO is received at A instead of FISUs in the aligned ready state.	1 - 0 SIO	1 - 0 SIO	

TEST NUMBER: 1.34		PAGE: 1 OF 1
REFERENCE: Q.703 § 7	STD: Fig. 8	
TITLE: Link State Control -	Expected signal units/orders	
SUB TITLE: SIOS received i	nstead of FISUs	
PURPOSE: To check the resp	ponse to the receipt of SIOS instead of FI	SUs in the aligned ready state
PRE-TEST CONDITIONS: 1		
CONFIGURATION: 1		TWDE OF THE T
		TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT S	SEQUENCE:	
SP B		SP A
Link		Link
	<	1 – 0 SIOS
1 - 0 SIOS	~~~~~>	
	<	: start
1 – 0 SIO	>	1 — 0 SIO
	<	1 - 0 SIN
1-0 SIN	>	
	<	1-0 FISU
: stop 1 – 0 SIOS		
1 – 0 5105	> <	1-0 SIOS
	•	1 – 0 5105
TEST DESCRIPTION		
1. Check link enters ou	t of service state when SIOS is received at	A instead of FISUs in the aligned ready state.
	out when brob is received at	1. material of 1450s in the anglied leady state.
		ı

TEST NUMBER: 1.35			PAGE: 1 OF 1			
REFERENCE: Q.703 §§ 7, 8	REFERENCE: Q.703 §§ 7, 8 STD: Fig. 8					
TITLE: Link State Control - Exp	pected signal units/orders					
SUB TITLE: SIPO received instea	d of FISUs					
PURPOSE: To check the response	to the receipt of SIPO instead of FISUs	in the ali	gned ready state			
PRE-TEST CONDITIONS: Link	out of service					
CONFIGURATION: 1			TYPE OF TEST: VAT			
EXPECTED SIGNAL UNIT SEQU	JENCE:					
SP B			SP A			
Link		Link				
1 – 0 SIOS	<>	1 - 0	0 SIOS			
1 - 0 SIO	<> <>	1 - 0	-			
: set LPO 1 ~ 0 SIPO	<>	1 – 0) FISU			
	<	1 – () FISU			
TEST DESCRIPTION						
1. Check link enters process	or outage state when SIPO received at A	instead of	FISUs in the aligned ready state.			

TEST	NUMBEI	R: 2.1	[PAGE: 1 OF 1
REFE	RENCE:	Q.703	3 §§ 7, 11	STD: Fig.	8			
TITLE	E: Link S	State C	ontrol – Unex	pected signal ur	its/orders			
SUB T	TITLE: U	Jnexpe	cted signal unit	s/orders in "Oı	it of service	" state		
PURP	OSE: To	check	that the unexpe	ected signal uni	ts/orders ar	e ignored		
PRE-T	TEST CON	NDITIO	ONS: Link ou	of service				
CONF	IGURAT	ION:	1	-		_		TYPE OF TEST: VAT
EXPE	CTED SIG	GNAL	UNIT SEQUE	NCE:	_			
		SP	В					SP A
Link	k						Link	
1 –		SIOS xxx		<		>	1 0	SIOS
		,						ууу
1 -	0 .	SIO		<			1 - 0	: start SIO
1 –	0 !	SIN		<			1 - 0	SIN
1 –	0]	FISU		<			1 - 0	FISU
								į
TEST D	DESCRIP	TION		-				
1.	Check success MSU.	that th	e unexpected sig IO, SIN, SIE, S	gnal units xxx r SIPO, SIB, aber	eceived fror	n B are igno (non-existing	red witho	ut impact on the system. xxx are ne and two octects), FISU and
2.	Check	that th	e unexpected or	ders yyy = Sto	p from leve	l 3 are ignor	ed withou	at impact on system (if applicable).
	<u> </u>	_						

TEST NUMBER: 2.2 PAGE: 1 OF 1			PAGE: 1 OF 1			
REFERENCE: Q.703 §§ 7, 11 STD: Fig. 9						
TITLE:	Link State Control - Unex	pected signal units/orders				
SUB TIT	TLE: Unexpected signal uni	ts/orders in "Not aligned" state				
PURPOS	SE: To check that unexpecte	ed signal units/orders are ignored				
PRE-TE	ST CONDITIONS: Link or	nt of service				
CONFIG	GURATION: 1		TYPE OF TEST: VAT			
EXPEC	reó signal unit sequi	ENCE:				
	SP B		SP A			
Link		Lin	ς .			
		< 1 -	0 SIOS			
1 – () SIOS	>	: start			
		<u> </u>	0 \$10			
	xxx	>	ууу			
1 - 0) SIO	>	353			
1 - 6) SIN	<> 1 -	0 SIN			
		· · · · · · · · · · · · · · · · · · ·	0 FISU			
1 6) FISU	>				
TEST D	TEST DESCRIPTION					
1.	1. Check that the unexpected signal unit xxx received from B are ignored without impact on the system. xxx are successively SIOS, SIPO, SIB, aberrant LSSU, FISU and MSU.					
2.	•	orders yyy received from Level 3 are ignored w	ithout impact on the system. yyy are			
	successively clear Elvi and	start (11 applicable).				

TEST	NUMBER: 2.3		PAGE: 1 OF 1		
REFERENCE: Q.703 §§ 7, 11 STD: Fig. 9					
TITLE	: Link State Control - Expe	cted signal units/orders			
SUB T	ITLE: Unexpected signal uni	s/orders in "Aligned" state			
PURP	OSE: To check that unexpecte	d signal units/orders are ignored			
PRE-T	EST CONDITIONS: Link ou	t of service			
CONF	IGURATION: 1		TYPE OF TEST: VAT		
EXPE	CTED SIGNAL UNIT SEQUE	NCE:			
	SP B		SP A		
Link	c		Link		
•	0 9705	<	1 – 0 SIOS		
1 —	0 SIOS	>	: start		
1 -	0 SIO	>	1 - 0 SIO		
		<	1 – 0 SIN		
	xxx	>			
1	0 SIN	>	ууу		
	5114	<>	1 – 0 FISU		
1 —	0 FISU	·			
		·			
TEST D	DESCRIPTION				
1.	Check that the unexpected si successively SIO, SIPO. SIB	gnal units xxx received from B are, aberrant LSSU, FISU and MSU.	ignored without impact on the system. xxx are		
2.	1	rders yyy received from Level 3 are	e ignored without impact on the system. yyy are		
i					

TEST NUMBER:	2.4		<u> </u>	PAGE: 1 OF 1
REFERENCE: (Q.703 §§ 7; 11	STD: Fig. 9		
TITLE: Link Sta	ate Control – Unexpe	ected signal units/orders		
SUB TITLE: Un	nexpected signal units.	orders in "Proving" state		
PURPOSE: To o	check that unexpected	signal units/orders are ignored		
PRE-TEST CONI	DITIONS: Link out	of service		
CONFIGURATIO	ON: 1	,		TYPE OF TEST: VAT
EXPECTED SIG	NAL UNIT SEQUE	NCE:		
S	Р В			SP A
Link			Link	
1 - 0 S	ios	<>	1 –	0 SIOS
		<	1 -	: start 0 SIO
1 – 0 S	SIO	>		
1 0 S	SIN	< <u>></u>	1 -	0 SIN
х	xx	>		
		<	1 -	ууу 0 FISU
1 – 0 F	FISU	>	1 -	0 F150
TEST DESCRIPT	TION			<u> </u>
		gnal units xxx received from B rant LSSU, FISU and MSU.	are ignored wit	hout impact on the system. xxx are
2. Check		rders yyy received from Level 3	are ignored wit	thout impact on the system. yyy are
Note -		B in "Initial alignment" state m	ay possibly cau	se link failure after transferring to "In

TEST NUMBER: 2.5		PAGE: 1 OF 1					
REFERENCE: Q.703 §§ 7, 11 STD: Fig. 8							
TITLE: Link State Control - Unex	pected signal units/orders						
SUB TITLE: Unexpected signal uni	ts/orders in "Aligned ready" state						
PURPOSE: To check that unexpected	ed signal units/orders are ignored						
PRE-TEST CONDITIONS: Link or	PRE-TEST CONDITIONS: Link out of service						
CONFIGURATION: 1		TYPE OF TEST: VAT					
EXPECTED SIGNAL UNIT SEQUE	ENCE:						
SP B		SP A					
Link	Li	nk					
1 – 0 SIOS		– 0 SIOS					
1 – 0 SIOS	>	: start					
1 0 0		- 0 SIO					
1 - 0 SIO							
1 – 0 SIN	<>	– 0 SIN					
		- 0 FISU					
XXX	>						
1 – 0 FISU	>	ууу					
TEST DESCRIPTION							
1. Check that the unexpected signal units xxx received from B are ignored without impact on the system. xxx are successively SIB and aberrant LSSU.							
2. Check that the unexpected orders yyy received from level 3 are ignored without impact on the system. yyy are successively set EM, clear EM, clear LPO and Start (if applicable).							
Note — The reception of SIB in "Aligned ready" state may possibly cause link failure after transferring to "In service" state because of the T6 expiration.							
	·						

TEST N	UMBER: 2.6			PAGE: 1 OF 1		
REFER	REFERENCE: Q.703 §§ 7, 11 STD: Fig. 8					
TITLE:	Link State Cont	trol - Unexpected signal units/orders				
SUB TI	ΓLE: Unexpecte	ed signal units/orders in "Aligned not ready"	state			
PURPO	SE: To check th	at unexpected signal units/orders are ignored	I			
PRE-TE	ST CONDITION	NS: Link out of service				
CONFIG	GURATION: 1			TYPE OF TEST: VAT		
EXPEC	TED SIGNAL U	NIT SEQUENCE:				
	SP B			SP A		
Link			Link			
	_	<	-	0 SIOS		
1 -	0 SIOS	~~~~~~~~~~>		: set LPO		
				: start		
1 -	0 SIO	<>	-	0 SIO		
		<	-	0 SIN		
1 -	0 SIN	>		a grpa		
	xxx	<>	•	0 SIPO		
				ууу		
1 -	0 FISU	>	. 1	0 SIPO		
		\	. 1	0 SIFO		
TEST D	TEST DESCRIPTION					
1.	1. Check that the unexpected signal units xxx received from B are ignored without impact on the system. xxx are					
2.	successively SIB and aberrant LSSU.					
2.	2. Check that the unexpected orders yyy received from level 3 are ignored without impact on the system. yyy are successively set EM, clear EM, clear LPO and Start (if applicable).					

TEST NUMBER: 2.7	PAGE: 1 OF 1					
REFERENCE: Q.703 §§ 7, 11 STD: Fig. 8						
TITLE: Link State Control - Unexpected signal units/orders						
SUB TITLE: Unexpected signal units/orders in "In service" state						
PURPOSE: To check unexpected signal units/orders are ignored						
PRE-TEST CONDITIONS: Link in service						
CONFIGURATION: 1	TYPE OF TEST: VAT					
EXPECTED SIGNAL UNIT SEQUENCE:						
SP B	SP A					
Link	Link					
<>	1 – 0 FISU					
aberrant LSSU>						
<> 1 – 0 FISU>	yyy 1 – 0 FISU					
TEST DESCRIPTION						
1. Check that an aberrant LSSU received from B is ignored without imp 2. Check that the unexpected orders yyy received from level 3 are ignore successively set EM, clear EM, clear LPO and Start (if applicable).						

TEST NUMBER: 2.8	PAGE: 1 OF 1					
REFERENCE: Q.703 §§ 7, 11 STD: Fig. 8						
TITLE: Link State Control - Unexpected signal units/orders	TITLE: Link State Control - Unexpected signal units/orders					
SUB TITLE: Unexpected signal units/orders in "Processor outage" state						
PURPOSE: To check that the unexpected signal units/orders are ignored						
PRE-TEST CONDITIONS: Link in service						
CONFIGURATION: 1	TYPE OF TEST: VAT					
EXPECTED SIGNAL UNIT SEQUENCE:						
SP B	SP A					
Link	Link					
	: set LPO 1 - 0 SIPO					
xxx>	ууу					
1 - 0 FISU>						
TEST DESCRIPTION						
Check that the unexpected signal units xxx received from A are ignored.	without impact on the system, xxx are					
successively SIB and aberrant LSSU. 2. Check that the unexpected orders yyy received from level 3 are ignored without impact on the system. yyy are						
successively set EM, clear EM and Start (if applicable).	. , , , , , , , , , , , , , , , , , , ,					

TEST NUMBER: 3.1			PAGE: 1 OF 1	
REFERENCE: Q.703 §§ 4, 10.2	STD: Fig. 8			
TITLE: Transmission failure				
SUB TITLE: Link aligned ready (Br	eak Tx path)			
PURPOSE: To test the response to a	transmission failure - detected by St	JERM –	when in "Aligned ready" state	
PRE-TEST CONDITIONS: Link ou	t of service			
CONFIGURATION: 1			TYPE OF TEST: VAT	
EXPECTED SIGNAL UNIT SEQUE	NCE:	,d		
SP B			SP A	
Link		Lînk		
1 – 0 SIOS	<>	1 - 0	sios	
			: start	
1 – 0 SIO	<>	1 - 0	SIO	
1 – 0 SIN	<>	1 - 0	SIN	
,	<	1 - 0	FISU	
: break Tx	<	1 - 0	SIOS	
TEST DESCRIPTION				
1. Break Tx path at B when in "Aligned ready" state, check that the SUERM detects the failure and the link is taken out of service.				
2. Repeat test, break Tx at A.				

TEST NUM	BER: 3.2			PAGE: 1 OF 1	
REFERENC	REFERENCE: Q.703 § 5.3 STD: Fig. 8				
TITLE: Tra	ansmission failure				
SUB TITLE:	Link aligned ready (Cor	rupt FIBs - Basic)			
PURPOSE: To check the response to a link failure after corruption of two FIBs — detected by reception control — while in Aligned ready State.					
PRE-TEST (CONDITIONS: Aligned	ready			
CONFIGUR	ATION: 1			TYPE OF TEST: VAT	
EXPECTED	SIGNAL UNIT SEQUE	NCE:			
	SP B			SP A	
Link			Link		
		<	1 -	0 FISU	
1 - 0	FISU corrupt FIB (FIB+FSN=7F)	>			
1 - 0	FISU corrupt FIB (FIB+FSN=7F)	>			
		<	1 —	0 SIOS	
TEST DESC	TEST DESCRIPTION				
	heck that receipt of two FI service.	SUs at A with corrupt FIB's at lin	k aligned rea	dy state causes the link to be taken out	

TEST NUMBE	R: 3.3			PAGE: 1 OF 1
REFERENCE: Q.703 §§ 8, 10.3 STD: Fig. 8				
TITLE: Trans	mission failure			
SUB TITLE:	Link aligned not read	y (Break Tx path)	· · · · · · · · · · · · · · · · · · ·	
PURPOSE: To	test the response to	a break in the transmission path -	detected by S	SUERM - in "Aligned not ready"
PRE-TEST CO	NDITIONS: Link o	out of service	<u> </u>	- Affi
CONFIGURAT	ION: 1			TYPE OF TEST: VAT
EXPECTED SI	GNAL UNIT SEQU	ENCE:		<u> </u>
	SP B			SP A
Link			Link	c
1 - 0	SIOS	<>	1 -	0 SIOS
				: set LPO
1 — 0	SIO	<>	1 -	start 0 SIO
1 - 0	SIN	<>	1 - 9	
	: break Tx	<	1 — (0 SIPO
		<	1 —	0 SIOS
TEST DESCRI	PTION			
	PO at A.		-	
	ink alignment at A.			
i		tate break Tx at B and check link is		service.
		ik in Tx at A, check link is taken out	of service.	
		en before Timer T1 expires.		

REFERENCE: Q.703 § 5.3, 8 STD: Fig. 8 TITLE: Transmission failure SUB TITLE: Link aligned not ready (Corrupt FIBs – Basic) PURPOSE: To check the response to a link failure after corruption of two FIBs – detected by reception control – whili in "Aligned not ready" PRE-TEST CONDITIONS: Link out of service CONFIGURATION: 1 TYPE OF TEST: VAT EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link <
SUB TITLE: Link aligned not ready (Corrupt FIBs — Basic) PURPOSE: To check the response to a link failure after corruption of two FIBs — detected by reception control — whilin "Aligned not ready" PRE-TEST CONDITIONS: Link out of service CONFIGURATION: 1 TYPE OF TEST: VAT EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link
PURPOSE: To check the response to a link failure after corruption of two FIBs — detected by reception control — while in "Aligned not ready" PRE-TEST CONDITIONS: Link out of service CONFIGURATION: 1 EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link
in "Aligned not ready" PRE-TEST CONDITIONS: Link out of service CONFIGURATION: 1 TYPE OF TEST: VAT EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link
CONFIGURATION: 1 TYPE OF TEST: VAT EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link
EXPECTED SIGNAL UNIT SEQUENCE: SP B SP A Link Link
SP B SP A Link Link
Link Link
< 1 = 0 SIOS
1 - 0 SIOS>
: set LPO
: start
<> 1 - 0 SIO>
1 - 0 SIO
1 - 0 SIN>
< 1 – 0 SIPO
1 - 0 FISU corrupt FIB> (FIB+FSN=7F)
1 - 0 FISU corrupt FIB
< 1 - 0 SIOS
TEST DESCRIPTION
1. Set LPO at A.
2. Start link alignment at A.
3. Send two corrupt FISUs (corrupt FIBs) on link aligned not ready.
4. Check link is taken out of service at A.

TEST NUMBER: 3.5	PAGE: 1 OF 1			
REFERENCE: Q.703 § 4, 10.2 STD: Fig. 8				
TITLE: Transmission failure				
SUB TITLE: Link in service (Break Tx path)				
PURPOSE: To test the response to a transmission failure when the link is "Ir	service"			
PRE-TEST CONDITIONS: Link in service				
CONFIGURATION: 1	TYPE OF TEST: VAT, CPT			
EXPECTED SIGNAL UNIT SEQUENCE:				
SP B	SP A			
Link	Link			
<	1 – 0 FISU			
1 - 0 FISU> : break Tx				
<	SIOS			
TEST DESCRIPTION				
1. Break Tx at B, check SIOS returned from A.				
2. Repeat test, break at A.				

TEST NUMBER: 3.6		PAGE: 1 OF 1		
REFERENCE: Q.703 § 5.3	STD: Fig. 8			
TITLE: Transmission failure				
SUB TITLE: Link in service (Corrupt FIBs - Basic)				
PURPOSE: To check the response to a link failure after corruption of two FIBS — detected by reception control — while "In service"				
PRE-TEST CONDITIONS: Link in	service			
CONFIGURATION: 1		TYPE OF TEST: VAT		
EXPECTED SIGNAL UNIT SEQUE	NCE:			
SP B		SP A		
Link	Link			
	< 1 -	0 FISU		
1 - 0 FISU (FIB+FISN=FF)	>			
1 - 0 FISU corrupt FIB (FIB+FSN=7F)	>			
1 – 0 FISU corrupt FIB (FIB+FSN=7F)	>			
	< 1 -	0 SIOS		
TEST DESCRIPTION				
1. Check that receipt of two FISUs at A with corrupt FIBs at link in service state causes the link to be taken out of service.				

TEST NUMBER: 3.7	PAGE: 1 OF 1			
REFERENCE: Q.703 § 8, 10.2 STD: Fig. 8				
TITLE: Transmission failure				
SUB TITLE: Link in processor outage (Break	Tx path)			
PURPOSE: To test the response to a transmis	sion failure when the link is "Processor outage"			
PRE-TEST CONDITIONS: Link in service				
CONFIGURATION: 1	TYPE OF TEST: VAT			
EXPECTED SIGNAL UNIT SEQUENCE:				
SP B	SP A			
Link	Link			
4	> 1 – 0 FISU			
<	: set LPO			
	1 – 0 SIOS			
TEST DESCRIPTION				
Break Tx path at B when in "Process taken out of service.	or outage" state, check that the SUERM detects the failure and the link is			

TEST NUMBER	3.8		1	PAGE: 10F1
REFERENCE:	Q.703 § 5.3, 8	STD: Fig. 8		
TITLE: Transm	nission failure			
SUB TITLE: L	ink in processor outa	ge (Corrupt FIBs - Basic)		
	check the response to "Processor outage"	o a link failure after corruption of two	o FIBs – det	ected by reception control — while
PRE-TEST CON	IDITIONS: Link in	service		
CONFIGURAT	ION: 1		-	TYPE OF TEST: VAT
EXPECTED SIG	GNAL UNIT SEQUE	INCE:	'	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	SP B			SP A
Link			Link	
10	EICH	<>	1 - 0	FISU
	1150	<	1 - 0	: set LPO SIPO
	FISU corrupt FIB (FIB+FSN=7F)	>	1 – 0	SIPŲ
	FISU corrupt FIB (FIB+FSN=7F)	>		
		<	1 - 0	SIOS
TEST DESCRI	PTION			
1. Check of ser		FISUs at A with corrupt FIBs on proc	essor outage s	state causes the link to be taken ou

TEST NUMBER: 4.1	PAGE: 1 OF 1				
REFERENCE: Q.703 § 8 STD: Fig. 10	·				
TITLE: Processor outage control					
SUB TITLE: Set and clear LPO while link in service					
PURPOSE: To check the ability to perform correctly when LPO is set and recovered					
PRE-TEST CONDITIONS: Link in service					
CONFIGURATION: 1	TYPE OF TEST: VAT				
EXPECTED SIGNAL UNIT SEQUENCE:	:				
SP B	SP A				
Link					
<) FISU				
< 1 – 0					
< 1 - 0 < 1 - 0					
TEST DESCRIPTION					
Set LPO at A while link in service.					
2. Check message is discarded.					
3. Clear LPO at A.					
4. Check MSU is sent correctly.					

TEST N	UMBER: 4.2			PAGE: 1 OF 1
REFERI	ENCE: Q.703 § 8 STI	D: Fig. 10		
TITLE:	Processor outage control			
SUB TIT	TLE: RPO during LPO			
PURPO	SE: To test the response to RP	O is set and cleared when "LPO"		
PRE-TE	ST CONDITIONS: Link in se	ervice. PO set at B		
CONFI	GURATION: 1			TYPE OF TEST: VAT
EXPEC	ted signal unit sequen	CE:		
	SP B			SP A
Link			Link	
		<	1 -	: set LPO 0 SIPO
1 - 0	0 SIPO	>		
	· · · · · · · · · · · · · · · · · · ·	<	1 —	0 SIPO
1 -	: clear LPO 0 FISU	> <	1 -	0 SIPO
				:
TEST DESCRIPTION				
1.	Set LPO at A.			
2.	Clear LPO at B.			e Extension with the same
3.	Check is SIPO sent from A.			

TEST NUMBER: 4.3		PAGE: 1 OF 1
REFERENCE: Q.703 § 8 S	TD: Fig. 10	
TITLE: Processor outage control		
SUB TITLE: Clear LPO when "Both	processor outage"	
PURPOSE: To test the response to I	.PO, RPO recovered when "Both processor	outage"
PRE-TEST CONDITIONS: PO set a	at A and B	
CONFIGURATION: 1		TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUE	NCE:	
SP B		SP A
Link		Link
1 – 0 SIPO	<>	l — 0 SIPO
: clear LPO	<	: clear LPO - 0 FISU
1 - 0 FISU	> <	– 0 FISU
**		
TEST DESCRIPTION		
1. Clear LPO at A.		
 Clear LPO at B. Check is FISU sent from A. 	·	

TEST N	UMBER: 5.1	PAGE: 1 OF 1		
REFERI	ENCE: Q.703 § 4.1 STD: Fig. 11			
TITLE:	SU delimitation, alignment, error detection and correction			
SUB TIT	LE: More than seven '1's between MSU opening and closing flags			
PURPO	E: To test the signal unit delimitation, alignment, and error detection ac seven or more consecutive '1's	tion on receipt of an MSU containing		
PRE-TE	ST CONDITIONS: Link in service			
CONFIG	GURATION: 1	TYPE OF TEST: VAT		
EXPEC	TED SIGNAL UNIT SEQUENCE:			
	SP B	SP A		
Link	L	ink		
		– 0 FISU		
1 (
1 —		- 0 FISU (BSN unchanged)		
TEST DESCRIPTION				
1.	Send a corrupt MSU at B containing seven consecutive '1's.			
2.	Check that A discards the signal unit, and goes into octet counting mode.			
3.	On reception of a correct FISU, check that A leaves the octet counting r	node and remains in the "in service" state.		

TEST NUMBER: 5.2	· · · · · · · · · · · · · · · · · · ·	PAGE: 1 OF 1
REFERENCE: Q.703 § 4.1	STD: Fig. 11	
TITLE: SU delimitation, alignmen	t, error detection and correction	
SUB TITLE: Greater than maximu	um signal unit length	
PURPOSE: To test the signal unit maximum length	delimitation, alignment, error detection	n action on receipt of signal unit greater than the
PRE-TEST CONDITIONS: Link	in service	
CONFIGURATION: 1		TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQU	JENCE:	
SP B		SP A
Link		Link
	<	1 – 0 FISU
1 - 0 FISU 1 - 0 corrupt MSU (FIB+FSN=80) (signal unit length > max. allowed)	> >	
1 – 0 FISU	<>	1 - 0 FISU (BSN unchanged)
TEST DESCRIPTION		
2. Check A discards the sign	with maximum length plus extra bits and all unit, and goes into octet counting mo	

TEST N	IUMBER: 5.	3			PAGE: 1 OF 1
REFERENCE: Q.703 § 4.1 STD: Fig. 11					
TITLE:	SU delimita	tion, alignment,	error detection and correction		
SUB TI	TLE: Below	minimum signal	unit length		
PURPO		the signal unit de m length	limitation, alignment and error detection	on action	on receipt of signal unit less than the
PRE-TE	ST CONDIT	IONS: Link in	service		
CONFI	GURATION:	1			TYPE OF TEST: VAT
EXPEC	TED SIGNA	L UNIT SEQUE	NCE:		
	SP	В			SP A
Link				Link	
			<	1 - (
1 -	0 FISU	ſ	>		(BIB + BSN = FF)
1 -		pt MSU +FSN=80)	>		
	(sign:	al unit less 6 octets)			
		· · · · · · · · · · · · · · · · · · ·	<	1 – 0	
1 - 0	0 FISU	Ī	>		(BSN unchanged)
TEST D	DESCRIPTIO	N			
1.			B of less than 6 octets (i.e. less than 5 o		ween flags).
2. 3.			unit, and goes into octet counting mod		and another to the to
3.	On reception	on of a correct FI	SU, check that A leaves the octet count	ting mode	e and remains in the "in service" state.

TEST NUMB	ER: 5.4	PAGE: 1 OF 1
REFERENCI	3: Q.703 § 2 STD: Fig. 11	
TITLE: SU	delimitation, alignment, error detection and correction	
SUB TITLE:	Reception of single and multiple flags between FISUs	
PURPOSE:	To check that single and multiple flags between FISUs can be receive	d
PRE-TEST C	ONDITIONS: Link in service	
CONFIGURA	ATION: 1	TYPE OF TEST: VAT
EXPECTED	SIGNAL UNIT SEQUENCE:	
	SP B	SP A
Link	Li	ak
1 - 0	FISU>	,
	case i FISU F FISU	
	case 2 FISU F F FISU $n(\geqslant 2)$	F: Flag n=number of flags
1 - 0	FISU>	
TEST DESCR	LIPTION	
1. Che	ck that single and n flags, case 1 and case 2 respectively, can be recei	ved.

TEST NUMBER: 5.5	PAGE: 1 OF 1
REFERENCE: Q.703 § 2 STD: Fig. 11	,
TITLE: SU delimitation, alignment, error detection and correction	
SUB TITLE: Reception of single and multiple flags between MSUs	
PURPOSE: To check that single and multiple flags between MSUs can be received	
PRE-TEST CONDITIONS: Link in service	
CONFIGURATION: 1	TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUENCE:	
SP B	SP A
Link Link	
1 - 0 FISU>	
case 1 MSU F MSU	
case 2 MSU F F MSU n(≥2)	F: Flag n=number of flags
1 0 FISU>	
TEST DESCRIPTION	<u> </u>
1. Check that single and n flags; case 1 and case 2 respectively, can be received	4.

TEST NUMBER: 6.1 PAGE: 1 OF 1

REFERENCE: Q.703 § 10.2 STD: Fig. 11, Fig. 18, Fig. 8

TITLE: SUERM check

SUB TITLE: Error rate of 1 in 256 - Link remains in service

PURPOSE: To check the SUERM at a link error rate of 1 in 256 units

PRE-TEST CONDITIONS: Link in service

CONFIGURATION: 1 TYPE OF TEST: VAT

EXPECTED SIGNAL UNIT SEQUENCE:

SP B

SP A

Link

<----- 1 - 0 FISU

1 - 0 FISU

Ct : corrupt 1 in 256

TEST DESCRIPTION

1. Check that "In service" state is maintained. The test should run for several minutes.

2. Ct =the count of corrupted FISUs.

Note -1) The number (x) of corrupt signal units before an SIOS returned is calculated according to the following formula (a = number of correct signal units):

$$x = \frac{1}{1+a} \left(\frac{\frac{256 \times 64}{256}}{\frac{1+a}{1+a} - 1} \right)$$
 for $a < 256$

2) In this case as a = 255, so x = infinity.

TEST NUMBER: 6.2	PAGE: 1 OF 1
REFERENCE: Q.703 § 10.2 STD: Fig. 11, Fig. 18, Fig. 8	
TITLE: SUERM check	
SUB TITLE: Error rate of 1 in 254 — Link out of service	
PURPOSE: To check the SUERM at a link error rate of 1 in 254 units	
PRE-TEST CONDITIONS: Link in service	
CONFIGURATION: 1	TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUENCE:	
SP B	SP A
Link	Link
	1 – 0 FISU
1 - 0 FISU> : corrupt 1	
Ct in 254	
<	1-0 SIOS
TEST DESCRIPTION	
TEST DESCRIPTION	
1. SIOS should be returned after approx. 8192 corrupt FISUs (eg. CRC es	rror).
2. Ct = the count of corrupted FISUs.	

TEST NUMBER: 6.3	PAGE: 1 OF 1
REFERENCE: Q.703 § 10.2 STD: Fig. 11, Fig. 18, Fig. 8	
TITLE: SUERM check	-
SUB TITLE: Consecutive corrupted SUs	
PURPOSE: To test the SUERM on consecutive corrupted signal units	
PRE-TEST CONDITIONS: Link in service	
CONFIGURATION: 1	TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUENCE:	
SP B	SP A
Link	Link
1 - 0 FISU>	1 0 FISU
1 - 0 FISU> : corrupt 1 in 1	,
	1 – 0 SIOS
TEST DESCRIPTION	
 SIOS should be returned after approx. 64 corrupt FISUs (eg. CRC error Ct = the count of corrupted FISUs.).
• • • • •	

TEST NU	UMBER: 6.4			PAGE: 1 OF 1
REFERE	ENCE: Q.703 § 10.2	STD: Fig. 11, Fig. 18		
TITLE:	SUERM check			
SUB TIT	TLE: Time controlled bre	ak of the link		
PURPOS		a range of time controlled breaks of Tx	or Rx	
PRE-TES	ST CONDITIONS: Link			, 1 day
CONFIG	GURATION: 1	A Company		TYPE OF TEST: VAT
EXPECT	fed signal unit seq	UENCE:		
	SP B			SP A
Link			Link	
1 - 0	FISU	<	1 -	0 FISU
1 - 0	: break Tx	######################################		
	: restore Tx			
	FISU	>		
		<	1 -	0 FISU
TEST D	ESCRIPTION			
1.	Break the transmission 1	ink, and restore before level 2 goes out of	service. (Break time is less than approx. 128ms
	for 64 kbit/s).		4	TVOV.
2.	Check that A enters and	leaves the octet counting mode on recept	ion of an	FISU.
	·			

TEST NUMBER: 7.1		PAGE: 1 OF 1			
REFERENCE: Q.703 § 10.3 STD: Fig. 9, Fig. 11, Fig. 17					
TITLE: AERM check					
SUB TITLE: Error rate below the no	ormal threshold				
PURPOSE: To test the AERM on er	ror rates below the normal threshold				
PRE-TEST CONDITIONS: Link ou	t of service				
CONFIGURATION: 1		TYPE OF TEST: VAT			
EXPECTED SIGNAL UNIT SEQUE	NCE:				
SP B		SP A			
Link	Lir	nk			
1 - 0 SIOS	<	– 0 SIOS			
1 - 0 SIO 1 - 0 SIN 1 - 0 corrupt LSSUs 1 - 0 SIN	> <>>>	: start - 0 SIO - 0 SIN - T4 - 0			
TEST DESCRIPTION					
1. Start link at A.	-				
	pt LSSUs (e.g. CRC error) at B.(x < Tin).				
3. Check that the proving period	od continues and the link aligns successfully.				

TEST N	UMBER: 7.2		PAGE: 1 OF 1	
REFER	ENCE: Q.703 § 10.3	STD: Fig. 9, Fig. 11, Fig. 17		
TITLE:	AERM check			
SUB TI	TLE: Error rate at the norm	nal threshold		
PURPO	SE: To test the AERM at a	n error rate equal to the normal thresh	old	
PRE-TE	ST CONDITIONS: Link of	out of service		
CONFIG	GURATION: 1		TYPE OF TEST: VAT	
EXPEC	TED SIGNAL UNIT SEQU	ENCE:		
	SP B		SP A	
Link			Link	
1 - 0) SIOS	<>	1 - 0 SIOS	
			: start	
1 - 6) SIO	<>	1 – 0 SIO	
1 - 0) SIN	<>	1 – 0 SIN	
1 - 0	K	>		
	SIN	>	T4	
		<	1-0 FISU	
TEST D	ESCRIPTION			
1.	Start link at A.			
2.	Generate x number of cor	rupt LSSUs (e.g. CRC error) at B.(x ≥	Tin).	
3.	Check that the proving pe	riod is aborted, then restarted and link	aligns successfully.	
L I				

EST NUM				
EFERENC	CE: Q.703 § 10.3	STD: Fig. 9, Fig. 11, Fig. 17		
TITLE: AE	RM check			
UB TITLE	: Error rate above the	normal threshold		
PURPOSE:	To test the AERM at	an error rate above the threshold over f	ive proving pe	riods
PRE-TEST	CONDITIONS: Link	out of service		
CONFIGUR	RATION: 1		Т	YPE OF TEST: VAT
EXPECTED	SIGNAL UNIT SEQU	JENCE:		
	SP B			SP A
Link			Link	
1 - 0	STOS	< 	1 - 0	SIOS
1 - 0	SIOS	>		: start
1 - 0	SIO	<>	1 - 0	SIO
		<	1 - 0	SIN
1 - 0 1 - 0	SIN	>		
1 – 0	corrupt LSSUs	<>	1 - 0	SIN
$ \begin{array}{r} 1 - 0 \\ 1 - 0 \end{array} $	SIN	>		
1 – 0	corrupt LSSUs	<>	1 - 0	SIN
1 - 0	SÏN	>		
1 - 0	corrupt LSSUs	<>	1 - 0	SIN
1 - 0	SIN		- •	
1 - 0	corrupt LSSUs	>		
		<	1 - 0	SIN
1 - 0 $1 - 0$	SIN corrupt LSSUs	>		
- 0	corrupt cosos	<>	1 - 0	SIOS
TEST DESC	RIPTION			
1. Sta	art link at A.			
2 Ge	enerate x number of cor	rupt LSSUs (e.g. CRC error) at B.(x ≥	Tin).	

				
TEST N	NUMBER: 7.4		PAGE: 1 OF 1	
REFER	ENCE: Q.703 § 10.3	STD: Fig. 9, Fig. 11, Fig. 17		
TITLE:	AERM check			
SUB TI	TLE: Error rate at the	emergency threshold		
PURPC	OSE: To test the AERM	at the emergency threshold		
PRE-TI	EST CONDITIONS: Li	nk out of service		
CONFI	GURATION: 1	, , , , , , , , , , , , , , , , , , , ,	TYPE OF TEST: VAT	
EXPEC	TED SIGNAL UNIT SI	EQUENCE:		
	SP B		SP A	
Link			Link	
1	0 SIOS	<>	1 – 0 SIOS	
1 —	0 SIO	<>	: start 1 - 0 SIO	
1 –	0 SIE	<>	1 – 0 SIN	
1 -	************************************	>		
T4 (Pe)		<	1 – 0 SIN	
(10)	i	<	1 – 0 FISU	
TEST [DESCRIPTION			
1.	Start link at A, check	emergency proving started from B.		
2.		corrupt LSSUs (e.g. CRC error) at B. (5 >	x ≽ Tie).	
3.	Check that link aligns			
			·	
				

TEST	NUMBER: 8.1			PAGE: 1 OF 1	
REFE	RENCE: Q.703 § 5.2	STD: Fig. 13, Fig. 14			
TITLE	E: Transmission and reception	n control (Basic)			
SUB T	TTLE: MSU transmission an	d reception			
PURP	OSE: To check basic MSU to	ransmission and reception			
PRE-T	EST CONDITIONS: Link is	n service			
CONF	IGURATION: 1			TYPE OF TEST: VAT, CPT	
EXPE	CTED SIGNAL UNIT SEQU	ENCE:	<u></u>		
	SP B			SP A	
Link	k		Link		
1	0 FISU	<>	1 - 0	FISU	
1 -		>			
	(FIB + FSN = 80) (BIB + BSN = FF)				
		<	1 - 0	FISU $(FIB+FSN=FF)$ $(BIB+BSN=80)$	
1 -	0 FISU (FIB+FSN=80) (BIB+BSN=FF)	>			
		<	1 - 0	MSU $(FIB+FSN=80)$ $(BIB+BSN=80)$	
1 –	0 FISU (FIB+FSN=80) (BIB+BSN=80)	>			
		<	1 - 0	FISU (FIB+FSN=80) (BIB+BSN=80)	
TEST I	DESCRIPTION				
1.	Generate an MSU at B.		<u> </u>	<u> </u>	
2.	Check that A receives the MSU correctly, and returns a positive acknowledgement.				
3.	Generate an MSU at A.	-	3		
4.	Check that B receives the M	ASU correctly, and returns a positive a	icknowledger	nent.	
	<u> </u>		_		

TEST NUMBER: 8.2		PAG	E: 1 OF 1
REFERENCE: Q.703 § 5.3	STD: Fig. 13	1	
TITLE: Transmission and recep	otion control (Basic)		
SUB TITLE: Negative acknowle	edgement of an MSU		
PURPOSE: To test the response	e to a negatively acknowledged MSU		
PRE-TEST CONDITIONS: Lin	nk in service		
CONFIGURATION: 1		ТҮРІ	E OF TEST: VAT
EXPECTED SIGNAL UNIT SE	QUENCE:	•	
SP B			SP A
Link		Link	
1 – 0 FISU	<>	1 - 0	FISU
	<	1 - 0	MSU (FIB+FSN=80)
	<	1 - 0	MSU (FIB+FSN=81)
1 - 0 FISU (BIB+BSN=7F	> ⁻)		
	<	1 - 0	MSU (FIB + FSN = 00)
	< 	1 - 0	MSU (FIB + FSN = 01)
TEST DESCRIPTION			
1. Send MSU from A.			
2. Reply with negative a	cknowledgement from B.		· · - · · · · · · · · · · · · · ·
3. Check that A retransm	nits the MSU.		
			19.00 E. 10.00

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TEST NUMBER: 8.3		P	AGE: 1 OF 1
REFERENCE: Q.703 § 5.3	STD: Fig. 13		
TITLE: Transmission and reception	control (Basic)		
SUB TITLE: Check RTB full			
PURPOSE: To check that MSUs are	buffered when no acknowledgements	s are received	
PRE-TEST CONDITIONS: Link in	service		
CONFIGURATION: 1		T	YPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUE	ENCE:		
SP B			SP A
Link		Link	
1 - 0 FISU (BIB+BSN=FF)	<	1 - 0	FISU
, , , , , , , , , , , , , , , , , , ,	<	1 - 0	MSU (FIB+FSN=80)
	<	1 - 0	MSU (FIB+FSN=FE)
	<	1 - 0	FISU (FIB+FSN=FE)
1 - 0 FISU (BIB+BSN=7F)	>		
	< -	1 - 0	MSU (FIB + FSN = 00)
	<	1 - 0	MSU (FIB+FSN=7E)
TEST DESCRIPTION			
1. Generate MSUs at A, at a r	ate of 100 per second, in order to fill t	the RTB before	e the EDA timer T7 expires.
	ent from B until the last message is rec		!
3. Check that the complete cor	tents of the RTB are retransmitted.		

TEST NUMBER: 8.4		PAG	GE: 10F1
REFERENCE: Q.703 § 5.2	STD: Fig. 14		
TITLE: Transmission and reception c	ontrol (Basic)		
SUB TITLE: Single MSU with errone	cous FIB		
PURPOSE: To ensure correct perform	nance when an MSU with errone	ous FIB is received	
PRE-TEST CONDITIONS: Link in	service		
CONFIGURATION: 1		TY	PE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUE	NCE:	<u>'</u>	
SP B			SP A
Link		Link	
	<	1 - 0	FISU (BIB+BSN=7F)
1 – 0 FISU (FIB+FSN=7F)	>		
$1 - 0 \qquad MSU $ $(FIB + FSN = 80)$	<>	1 - 0	FISU
1 - 0 FISU (FIB+FSN=00) 1 - 0 FISU	>		(BIB + BSN = 7F)
(FIB + FSN = 00)	<	1 - 0	FISU (BIB + BSN = FF)
1 - 0 MSU (FIB+FSN=80)	<>	1 - 0	FISU (BIB+BSN=80)
TEST DESCRIPTION			***
1. Generate an MSU at B with	FIB inverted.		
2. Check A discards the MSU.			
3. Generate 2 FISUs at B with	correct FIB.		
4. Check A discards the FISU	and negative acknowledgement r	eturned.	
	e MSU correctly, and positive act		ned.

TEST 1	NUMB:	ER: 8.5			PAGE: 1 OF 1
REFE	RENCE	E: Q.703 § 5.2	STD: Fig. 14	ζ.	
TITLE	: Tran	smission and reception	control (Basic)		*
SUB T	ITLE:	Duplicated FSN			}
PURPO	OSE:	To test the reception co	ntrol response to duplicated FSNs		-
PRE-T	EST CO	ONDITIONS: Link in	service		
CONFI	IGURA	TION: 1		-	TYPE OF TEST: VAT
EXPEC	CTED S	SIGNAL UNIT SEQUI	ENCE:		
		SP B			SP A
Link	:			Link	
1	0	FISU	<>	1 – 0) FISU
			_		
1 –	U	MSU (FIB+FSN=80)	>		
			<	1 - 0	FISU (BIB+BSN=80)
1	0	MSU (FIB + FSN = 80)	>		
1 —	0	FISU (FIB + FSN = 81)	>		
			<	1 - 0	FISU (BIB+BSN=00)
1 –	0	MSU (FIB + FSN = 01)	>		
			<	1 - 0	FISU (BIB+BSN=01)
TEST D	DESCR				
1.	Gene		ck A receives the MSU correctly an		
2.	Dupl	licate the FSN at B, che	eck that A responds with a negative	acknowledger	ment.
3.	Retra	ansmit the MSU with c	orrect FSN, check that A replies with	th a positive a	cknowledgement.

TEST N	UMBER: 8.6		PAGE: 1 OF 1			
REFER!	REFERENCE: Q.703 § 5.2 STD: Fig. 14					
TITLE:	Transmission and reception	control (Basic)				
SUB TI	TLE: Erroneous retransmiss	ion – Single MSU				
PURPO	SE: To test the reception co	ntrol response to retransmission of	of a single MSU	ī		
PRE-TE	ST CONDITIONS: Link in	service	,			
CONFIG	GURATION: 1			TYPE OF TEST: VAT		
EXPEC	TED SIGNAL UNIT SEQUI	ENCE:				
	SP B			SP A		
Link			Link			
		<	1 -	0 FISU (BIB+BSN=FF)		
1 -	0 FISU (FIB-⊢FSN=FF)	>		(DID DDN -TT)		
1 -		>				
1		>				
1 -		>				
		<	1 -	0 FISU (BIB+BSN=7F)		
1 -	0 MSU (FIB + FSN = 00)	 >				
		<	1 –	0 FISU (BIB+BSN=00)		
TEST DESCRIPTION						
1.	1. A single MSU with FIB inverted in error is sent to A, followed by FISUs with correct FIBs.					
2.	2. Check that A returns a negative acknowledgement for the MSU.					
3.	Retransmit the MSU correctly.					
4.	Check that A receives the !	MSU correctly and returns a posit	tive acknowledg	ement.		
				_		

TEST 1	TEST NUMBER: 8.7						PAGE: 1 OF 1	
REFER	REFERENCE: Q.703 § 5.3 STD: Fig. 14							
TITLE	: Trans	smission	and reception	control (Basic)		,,,,,,	-	-
SUB T	ITLE:	Errone	ous retransmissi	on – Multiple FISUs		<u>.</u>		
PURPO	OSE: T	o test r	eception control	response to retransm	issions of multiple	e FISUs	<u>-</u> ··· ,	
PRE-TI	EST CO	NDITI	ONS: Link in	service				
CONFI	IGURA'	TION:	1				TYPE OF TEST: V	/AT
EXPEC	CTED S	IGNAL	. UNIT SEQUE	NCE:	<u></u>	 .		
		SP	В				SP A	
Link	:					Link		
1 -	0	FISU (FIB+	- FSN = FF)	<		1 - 0) FISU	
1 -	0	FISU	- FSN = 7F)	<u> </u>	·>			
1 –	0	FISU	-FSN=FF)		· >			
1 -	0	FISU (FIB+	- FSN = 7F)		·>			
				<		1 - 0	SIOS	
TEST D	ESCRI	PTION						
1,	Gene	rate FIS	SUs with the FII				- 186	
2.	Chec	k that A	A responds with	link out of service.			•	
1								
	<u> </u>							

TEST NUMBER: 8.8			PAGE: 1 OF 1			
REFERENCE: Q.703 § 5.3	REFERENCE: Q.703 § 5.3 STD: Fig. 14					
TITLE: Transmission and reception	TITLE: Transmission and reception control (Basic)					
SUB TITLE: Single FISU with corru	SUB TITLE: Single FISU with corrupt FIB					
PURPOSE: To test the response to r	eceive an FISU with a corrupt FIB	,				
PRE-TEST CONDITIONS: Link in	service	,, <u>, , , , , , , , , , , , , , , , , ,</u>	,			
CONFIGURATION: 1			TYPE OF TEST: VAT			
EXPECTED SIGNAL UNIT SEQUE	NCE:					
SP B			SP A			
Link		Link				
1 – 0 FISU	<>	1 -	0 FISU			
(FIB+FSN=FF) 1 - 0	> <>	1 —	0 FISU			
(FIB+FSN=FF)	·	1 - 0	0 FISU			
TEST DESCRIPTION						
1. Generate one FISU with a	corrupt FIB at B, and check that the li	nk status r	remains in service.			

TEST	NUMBER: 8.9			·	PAGE: 1 OF 1		
REFERENCE: Q.703 § 5.2 STD: Fig. 10, Fig. 14							
TITLE	TITLE: Transmission and reception control (Basic)						
SUB T	TTLE: Single FISU prior to F	PO being set					
PURP	OSE: To test the response to I	RPO while in the abnorm	al FIB state	-			
PRE-T	EST CONDITIONS: Link in	service	"	-	-		
CONF	IGURATION: 1				TYPE OF TEST: VAT		
EXPE	CTED SIGNAL UNIT SEQUE	NCE:	-10-				
	SP B				SP A		
Link	τ			Link			
		<		1 - 0	FISU		
1 —	0 FISU		>				
1 -	FISU (one only) (FIB+FSN=7F)		>				
1	0 SIPO		>				
1 ~	0 MSU $(FIB + FSN = 80)$		>				
1 –			> a)				
1 —	0 FISU $(FIB + FSN = 80)$		>				
		<		1 - 0	FISU $(BIB + BSN = 7F)$		
1 –	0 MSU (FIB+FSN=00)		>				
		<		1 - 0	FISU $(BIB + BSN = 00)$		
					ł		
a) RPO	at A has recovered, but this F	ISU is discarded.					
TEST D	DESCRIPTION	·					
			<u>-</u>				
1.	one 125 at 2 min abternat 1 tb.						
2. 3.	Send SIPO from B, followed						
<i>ა</i> .	Check A responds correctly	with negative acknowledg	ement and a re	transmiss	sion is received corrrectly.		
	<u> </u>		111/2				

TEST N	UMBER: 8.10	PAGE: 1 OF 1			
REFERI	ENCE: Q.703 § 5.3	STD: Fig. 14		-	
TITLE:	Transmission and reception	control (Basic)			
SUB TIT	TLE: Abnormal BSN - sing	gle MSU			
PURPOS	SE: To test the response to a	n abnormal BSN			
PRE-TE	ST CONDITIONS: Link in	service			
CONFIC	GURATION: 1			TYPE OF TEST: VAT	
EXPEC	TED SIGNAL UNIT SEQUE	NCE:			
	SP B			SP A	
Link			Link		
1 – 0	FISU (FIB+FSN=FF) (BIB+BSN=FF)	<>	1 —	0 FISU	
1 - (,	>			
1 - 0	FISU (FIB+FSN=80) (BIB+BSN=FF)	> a)			
1 - 0	FISU (FIB+FSN=80) (BIB+BSN=FF)	>			
		<	1 -	0 FISU (BIB+BSN=7F)	
1 - (MSU (FIB+FSN=00) (BIB+BSN=FF)	>			
E		<	1 -	0 FISU (BIB+BSN=00)	
a) Though UNB: = 1, abnormal BSNR is not canceled.					
TEST D	TEST DESCRIPTION				
1.	Generate a single MSU with abnormal BSN at B, followed by FISUs with correct BSN.				
2.	Check that A responds with a negative acknowledgement.				
3.	Retransmit the MSU correct	atly at B.			
4.	Check that the MSU is reco	eived correctly and positive acknowled	dgement is a	given.	

TEST NUMBER	8.11			PAGE: 1 OF 1			
REFERENCE:	Q.703 § 5.3	STD: Fig. 14	-	1			
TITLE: Transm	TITLE: Transmission and reception control (Basic)						
SUB TITLE: A	SUB TITLE: Abnormal BSN — two consecutive FISUs						
PURPOSE: To	test the response to al	pnormal BSNs in two consecutive	FISUs				
PRE-TEST CON	DITIONS: Link in	service			_		
CONFIGURATI	ON: 1			TYPE OF TEST: VAT			
EXPECTED SIG	NAL UNIT SEQUE	NCE:					
S	SP B			SP A			
Link			Link				
	FISU BIB+BSN=FF)	<>	1 – (o fisu			
1 - 0	FISU (BIB+BSN=BF) FISU (BIB+BSN=BF) FISU (BIB+BSN=FF) TION te two consecutive FISU	SUs at B with abnormal BSNs. king the link out of service.	1 — () SIOS			

TEST NUMBER: 8.12	PAGE: 1 OF 1		
REFERENCE: Q.703 § 5.3 STD: Fig. 14			
TITLE: Transmission and reception control (Basic)			
SUB TITLE: Excesssive delay of acknowledgement			
PURPOSE: To test the transmission control response to the expiration of EDA time	r T7		
PRE-TEST CONDITIONS: Link in service			
CONFIGURATION: 1	TYPE OF TEST: VAT		
EXPECTED SIGNAL UNIT SEQUENCE:			
SP B	SP A		
Link Link			
<	0 FISU		
< 1 -	0 MSU (FIB+FSN=80)		
< 1 -	o sios		
TEST DESCRIPTION			
1. Generate an MSU at A.			
2. Discard the received MSU at B and send no acknowledgement to A for mo	·		
3. Check that the link is taken out of service by SIOS generated at A after T7	has expired.		
4. Timer T7 shall be in the range 0.5 secs to 2.0 secs.			
	,		

TEST NUMBER: 8.13	PAGE: 1 OF 1
REFERENCE: Q.703 § 7 STD: Fig. 14	
TITLE: Transmission and reception control (Basic)	
SUB TITLE: Level 3 Stop command	
PURPOSE: To test the response to a Stop command	
PRE-TEST CONDITIONS: Link in service	
CONFIGURATION: 1	TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUENCE:	
SP B	SP A
Link Link	S
<	0 FISU
1 - 0 FISU>	
< 1	: stop 0 SIOS
TEST DESCRIPTION	
1. Give Stop command at A.	
2. Check that A responds with link out of service.	

TEST N	UMBER: 9.1			PAGE: 1 OF 1
REFER	ENCE: Q.703 § 6.2	STD: Fig. 15, Fig. 16		
TITLE:	Transmission and reception	control (PCR)		
SUB TI	TLE: MSU transmission and	reception		
PURPO	SE: To check basic MSU tra	nsmission and reception		
PRE-TE	ST CONDITIONS: Link in	service		
CONFIG	GURATION: 1			TYPE OF TEST: VAT, CPT
EXPEC	TED SIGNAL UNIT SEQUE	NCE:		
	SP B			SP A
Link			Link	
1 1) Figur	<	1 () FISU (FSN=7F, BSN=7F)
1 - 0	FISU (FSN=7F, BSN=7F)	>		
		<	1 - 0	MSU (FSN=0, BSN=7F)
		<	1 - (
1 - 0	FISU (FSN=7F, BSN=0)	>		
		<	1 - 0) FISU (FSN=0, BSN=7F)
1 - 0	MSU (FSN=0, BSN=0)	>		
		<	1 – 0	FISU $(FSN=0, BSN=0)$
TEST D	ESCRIPTION		·	
1.	Generate an MSU at A.			
2.	Check that B receives the M	ISU correctly.		
3.	Check that A sends FISUs	after receiving an FISU with a positive	acknowled	dgement.
4.	Generate an MSU at B.			
5.	Check that A receives the M	ISU correctly and returns a positive acl	knowledge	ment.

TEST NUMBER: 9.2	-	PA	GE: 1 OF 1
REFERENCE: Q.703 § 6.3	STD: Fig. 15, Fig. 16		
TITLE: Transmission and reception	control (PCR)		
SUB TITLE: Priority control			
PURPOSE: To check the preventive	e retransmission procedure		
PRE-TEST CONDITIONS: Link in	1 service	_	
CONFIGURATION: 1		TY	PE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQU	ENCE:		
SP B			SP A
Link		Link	
1 0 Provi	<	1 - 0	FISU (FSN=7F, BSN=7F)
1 - 0 FISU (FSN=7F, BSN=7F)	>		
	< 	1 - 0	MSU (FSN=0, BSN=7F)
	< 	1 - 0	MSU (FSN=1, BSN=7F)
	<	1 — 0	MSU (FSN=2, BSN=7F)
	<	1 - 0	MSU (ESN 0 BSN 7E)
	<	1 - 0	(FSN=0, BSN=7F) MSU (FSN=1, BSN=7F)
	<	1 - 0	MSU (FSN=2, BSN=7F)
1 - 0 FISU (FSN=7F, BSN=0) 1 - 0 FISU	>		•
(FSN=7F, BSN=1) 1 - 0 FISU (FSN=7F, BSN=2)	>		
,	<	1 - 0	FISU (FSN=2, BSN=7F)
TEST DESCRIPTION			
 Generate two MSUs at A. No positive acknowledgem Check that MSUs are retra Generate another MSU at A. Check that B receives MSU Reply with positive acknow Check that A stops retransisends FISU. 	nsmitted at A. A. Is correctly.	owledgement fo	or the last MSU in RTB and

TEST NUMBER: 9.3	3			PAGI	E: 1 OF 1
REFERENCE: Q.702	3 § 6.4	STD: Fig. 15			
TITLE: Transmission	and reception	control (PCR)			
SUB TITLE: Forced	retransmission v	vith the value N ₁			
PURPOSE: To check	that "RTB full"	' is detected by N_1 and forced retransn	nission oc	ccurs	
PRE-TEST CONDITI	ONS: Link in	service			
CONFIGURATION:	1			TYPE	OF TEST: VAT
EXPECTED SIGNAL	UNIT SEQUE	NCE:			
SP B					SP A
Link			Link		•
1 – 0 FISU		<>	1 - 6	0	FISU (FSN=7F, BSN=7F)
	F, BSN=7F)	·			
		<	1 - 0	0	MSU (FSN=0, BSN=7F) ●
		<	1 – 6	0	MSU (FSN=7E, BSN=7F)
		<	1 — (0	MSU (FSN=0, BSN=7F)
1 – 0 FISU		<>	1 – 0	0	MSU (FSN=X, BSN=7F)
	F, BSN = 0)	<	1 – (0	MCH
		\ <u></u>	1 – (U	MSU (FSN=X+1, BSN=7F)
		<	1 – (0	MSU (FSN=7F, BSN=7F)
	TEST DESCRI	PTION			
 No positive Reply with a Check that the state of the stat	acknowledgeme a positive ackno the forced retran	a rate of 100 per second, in order to fint is sent from B until a forced retransical wild generated with BSN=0 before T7 expension is canceled after the transmiss number of MSUs which are available (127).	mission st pires at A ion of the	arts at e last M	A. SU in RTB.

TEST NUMBER: 9.4		1	PAGE: 1 OF 1
REFERENCE: Q.703 § 6.4	STD: Fig. 15		
TITLE: Transmission and reception of	control (PCR)		
SUB TITLE: Forced retransmission v	vith the value N ₂		
PURPOSE: To check that "RTB full"	' is detected by N ₂ and forced retran	nsmission start	S
PRE-TEST CONDITIONS: Link in	service		
CONFIGURATION: 1		Т	TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUE	NCE:		
SP B			SP A
Link		Link	
1 – 0 FISU	<>	1 - 0	FISU (FSN=7F, BSN=7F)
(FSN=7F, BSN=7F)	<	4 0	
		1 - 0	MSU (FSN=0, BSN=7F)
	<	1 - 0	MSU $(FSN = N - 1, BSN = 7F)$
	<	1 - 0	MSU (FSN=0, BSN=7F)
1 ~ 0 FISU	<	1 - 0	MSU (FSN=X, BSN=7F)
(FSN=7F, BSN=a-1)	<	1 - 0	MSU (FSN=a, BSN=7F)
	<	1 - 0	MSU (FSN=N, BSN=7F) (a > X)
TEST DESCRIP	TION		(= - 1-2)
1. Generate N+1 MSUs at A (the octet count of N MSUs is larger	- Al NT N	
	ement at B until a forced retransmis		L
3. Check that B receives the MS	SUs with $FSN=0$ up to $FSN=N-1$	but does not r	receive the MSU with FSN = N.
4. Reply with a positive acknow	reledgement with $BSN = a - 1$ at B. restarts from the next value of FSN		
6. Check that B receives the MS			
Note - N ₂ is the maximum	number of octets which are available	e for retransmi	ssion.

TEST N	UMBER: 9.5			PAGE: 1 OF 1
REFERI	ENCE: Q.703 § 6.4	STD: Fig. 15		
TITLE:	Transmission and reception	control (PCR)		
SUB TIT	TLE: Forced retransmission	cancel		
PURPOS	SE: To check that the forced	retransmission is canceled when BSN	equal to F	SNL is received
PRE-TE	ST CONDITIONS: Link in	service	,	
CONFIG	GURATION: 1			TYPE OF TEST: VAT
EXPEC	TED SIGNAL UNIT SEQUE	NCE:		·
	SP B			SP A
Link			Link	
		<	1 - 0	FISU $(FSN=7F, BSN=7F)$
1 – (FISU (FSN=7F, BSN=7F)	>		
		<	1 - 0	MSU (FSN=0, BSN=7F)
		<	1 - 0	MSU $(FSN=7E, BSN=7F)$
		<	1 - 0	MSU (FSN=0, BSN=7F)
1 – () FISU	<>	1 - 0	MSU (FSN = X, BSN = 7F)
	(FSN = 7F, BSN = 7E)	<	1 - 0	MSU $(FSN = 7F, BSN = 7F)$
TEST D	ESCRIPTION			
1.	Generate N ₁ +1 MSUs at A	, (e.g. 128).		
2.		gement at B until a retransmission occ	curs at A.	
3.		wledgement with BSN=7E at B.		
4.	Check that a forced retrans	nission is canceled and the MSU with	FSN=7F is	s sent at A.
	Note I - FSNL is the FSN			
	Note 2 — Alternatively, the could be used to start force	e number of octets threshold (N_2) , instead retransmission.	ead of the n	umber of MSUs threshold (N ₁),

TEST 1	NUMBER: 9.6		PA	AGE: 1 OF 1
REFER	RENCE: Q.703 § 6.4	STD: Fig. 15		
TITLE:	Transmission and reception	control (PCR)	-	
SUB TI	ITLE: Repetition of forced re	etransmission		
PURPO	OSE: To check that the forced retransmission	l retransmission repeats when "RTB fi	ull" is still dete	cted after finishing a forced
PRE-TI	EST CONDITIONS: Link in	service		
CONFI	GURATION: 1		TY	PE OF TEST: VAT
EXPEC	TED SIGNAL UNIT SEQUE	INCE:		
	SP B			SP A
Link			Link	
		<	1 - 0	FISU (FSN=7F, BSN=7F)
1 —	0 FISU (FSN=7F, BSN=7F)	>		(1511-71, BSN-71)
		<	1 - 0	MSU (FSN=0, BSN=7F)
		<	1 - 0	● MSU (FSN=7E, BSN=7F)
		<	1 - 0	MSU (FSN=0, BSN=7F)
		<	1 - 0	• MSU
		<	1 – 0	(FSN=7E, BSN=7F) MSU (FSN=0, BSN=7F)
TEST D	PESCRIPTION			
1.	Generate MSUs at A at a ra $(N \ge 127 \div T, \text{ where } T =$	ate of N per second, in order to make lower limit of T7)	A repeat a force	ed retransmission.
2.	No acknowledgement is sen	t from B.		
3.	Check that A repeats a force	ed retransmission.		
				_

TEST NUMBER: 9.7		F	PAGE: 1 OF 1
REFERENCE: Q.703 § 6.2	STD: Fig. 15		***
TITLE: Transmission and reception	control (PCR)		
SUB TITLE: MSU transmission whi	le RPO set		"
PURPOSE: To ensure correct perform	mance while RPO is set		
PRE-TEST CONDITIONS: Link in	service		
CONFIGURATION: 1		Т	TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUE	ENCE:	,	
SP B			SP A
Link		Link	
	<	1 - 0	FISU $(FSN = 7F, BSN = 7F)$
1 - 0 FISU (FSN=7F, BSN=7F)	>		
: set LPO 1 0 SIPO	>	1 - 0	MSU (FSN=0, BSN=7F) ●
(FSN=7F, BSN=7F)	<	1 - 0	FISU (FSN=0, BSN=7F)
: clear LPO 1 - 0 MSU (FSN=0, BSN=7F)	>		
1 - 0 MSU	<	1 - 0	MSU (FSN = 0, BSN = 7F)
(FSN=0, BSN=0)	<	1 - 0	FISU $(FSN=0, BSN=0)$
TEST DESCRIPTION			
3. Check A stops a retransmis 4. Cease PO and send an MS 5. Check A starts a retransmis	ositive acknowledgement at B.	nd not detect l	link failure by the expiration of T7.

TEST NUMBER: 9.8		PAGE: 1 OF 1
REFERENCE: Q.703 § 6.3	STD: Fig. 16	, submitted
TITLE: Transmission and reception	control (PCR)	
SUB TITLE: Abnormal BSN — Sin	gle MSU	
PURPOSE: To test the response to a	an abnormal BSN	
PRE-TEST CONDITIONS: Link in	service	
CONFIGURATION: 1		TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQUE	NCE:	
SP B		SP A
Link	Link	
	< 1 -	
1 - 0 FISU (FSN=7F, BSN=7F) 1 - 0 MSU (FSN=0, BSN=0) 1 - 0 MSU (FSN=0, BSN=7F) 1 - 0 MSU (FSN=0, BSN=7F)	>>>>>> 1 -	(FSN=7F, BSN=7F) 0 FISU (FSN=7F, BSN=0)
l control of the cont	with abnormal BSN followed by retransmission a positive acknowledgement and not detect link	

TEST NUMBER: 9.9		PAGE: 1 OF 1
REFERENCE: Q.703 § 6.3	STD: Fig. 16	
TITLE: Transmission and reception	control (PCR)	
SUB TITLE: Abnormal BSN - Tw	o MSUs	
PURPOSE: To test the response to	two consecutive MSUs with an MSU ha	ving normal BSN between them
PRE-TEST CONDITIONS: Link in	1 service	
CONFIGURATION: 1		TYPE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQU	ENCE:	
SP B		SP A
Link		Link
	<	1 - 0 FISU (FSN=7F, BSN=7F)
1 - 0 FISU (FSN=7F, BSN=7F) 1 - 0 MSU (FSN=0, BSN=7E) 1 - 0 MSU (FSN=0, BSN=7F) 1 - 0 MSU (FSN=0, BSN=7E)	>>>>>	1 - 0 SIOS (FSN=7F, BSN=7F)
TEST DESCRIPTION		
		MSU having normal BSN between them.
2. Check that all MSUs are of		
3. Check that A responds by	taking the link out of service.	

TEST NUMBER: 9.10		PA	GE: 1 OF 1
REFERENCE: Q.703 § 6.2	STD: Fig. 16	·	
TITLE: Transmission and reception	control (PCR)	16.	
SUB TITLE: Unexpected FSN			
PURPOSE: To check the reception	control response to an MSU with ur	nexpected FSN	
PRE-TEST CONDITIONS: Link in	ı service		_
CONFIGURATION: 1		TY	PE OF TEST: VAT
EXPECTED SIGNAL UNIT SEQU	ENCE:		
SP B			SP A
Link		Link	
	<	1 - 0	FISU TE BON TE
1 - 0 FISU (FSN=7F, BSN=7F)	>	·	(FSN=7F, BSN=7F)
1 - 0 MSU (FSN=0, BSN=7F)	>		
1 - 0 MSU (FSN=2, BSN=7F)	>		
	<	1 - 0	FISU (FSN=7F, BSN=0)
TEST DESCRIPTION			
1. Generate an MSU with une	xpected FSN at B.		
2. Check A discards the MSU	with unexpected FSN and not sends	acknowledgemen	t for that MSU.
;			

IESI N	UMBER: 9.11			PAGE: 1 OF 1
REFER	ENCE: Q.703 § 6.3	STD: Fig. 15		
TITLE:	Transmission and reception	control (PCR)		
SUB TI	TLE: Excessive delay of ack	nowledgement		
PURPO	SE: To test the transmission	control response to the expiration of l	EDA timer	Т7
PRE-TE	ST CONDITIONS: Link in	service		
CONFI	GURATION: 1			TYPE OF TEST: VAT
EXPEC	TED SIGNAL UNIT SEQUE	ENCE:		
	SP B			SP A
Link			Link	
		<	1 - 0) FISU (FSN=7F, BSN=7F)
1 -	0 FISU (FSN=7F, BSN=7F)	>		(ESN=11, DSN=11)
		<	1 - 0	MSU (FSN=0, BSN=7F)
				T7 •
		<	1 - 0	SIOS (FSN=0, BSN=7F)
TEST F	DESCRIPTION			
				,
1.	Generate an MSU at A.			
2.	T	cknowledgement at B for more than T		
3.		instead of retransmission of MSU after	T7 expires	s.
4.	Timer T7 shall be in the ra	nge 0.5 secs to 2.0 secs.		

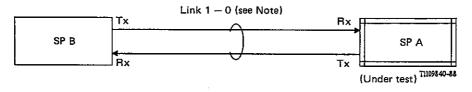
TEST NUMBER: 9.12	PAGE: 1 OF 1				
REFERENCE: Q.703 § 6.2 STD: Fig. 16					
TITLE: Transmission and reception control (PCR)					
SUB TITLE: FISU with FSN expected for MSU					
PURPOSE: To check that the received FISU having FSN expected for	MSU is discarded				
PRE-TEST CONDITIONS: Link in service					
CONFIGURATION: 1	TYPE OF TEST: VAT				
EXPECTED SIGNAL UNIT SEQUENCE:					
SP B	SP A				
Link	Link				
1 - 0 FISU					
<	1 - 0 FISU (FSN=7F, BSN=7F)				
1 - 0 FISU> (FSN=0, BSN=7F)	,				
< 	1 – 0 FISU (FSN=7F, BSN=7F)				
TEST DESCRIPTION					
1. Generate an FISU with FSN expected for MSU at B.	Generate an FISU with FSN expected for MSU at B.				
2. Check that A discards the FISU and responds with an FISU with correct BSN.					
·					
·					
	_				

TEST NUMBER: 9.13	PAC	PAGE: 1 OF 1			
REFERENCE: Q.703 § 7 STD: Fig. 16					
TITLE: Transmission and reception control (PCR)					
SUB TITLE: Level 3 Stop command	SUB TITLE: Level 3 Stop command				
PURPOSE: To test the response to a Stop command					
PRE-TEST CONDITIONS: Link in service					
CONFIGURATION: 1	PE OF TEST: VAT				
EXPECTED SIGNAL UNIT SEQUENCE:	<u> </u>				
SP B		SP A			
Link	Link				
<>	1 - 0	FISU			
<	1 - 0	: stop SIOS			
		ē			
TEST DESCRIPTION					
1. Give Stop command at A.					
2. Check that A responds with link out of service.					

TEST N	UMBER: 10.1		PAGE:	1 OF 1
REFERENCE: Q.703 § 9 STD: Fig. 19				
TITLE:	Congestion Control	_		
SUB TIT	LE: Congestion abatement		,	1
PURPOS	E: To check the congestion abatement procedure			
PRE-TES	ST CONDITIONS: Link in service			, , , , , , , , , , , , , , , , , , ,
CONFIC	GURATION: 1		TYPE OF	TEST: VAT
ЕХРЕСТ	ED SIGNAL UNIT SEQUENCE:			
	SP B		SP	A
Link	L	ink		
				: make congestion
	<1	- 0	•	SIB
	< <u></u> 1		T5	ave.
	1	- 0		SIB •
	< 1	0		: clear congestion state FISU
TEST DE	ESCRIPTION		<u>,</u>	
1.	Make congestion state at A and check A sends SIB. (Implementation of congestion control is not specified.)	•		1
2.	Check B receives SIBs at the interval of T5.			
3.	Clear congestion state at A and check A stops sending SIBs.			
4.	Timer T5 shall be in the range 80 ms to 120 ms.			Ì

TEST N	UMBER: 10.2 PAGE: 1 OF 1			
REFER	ENCE: Q.703 § 9.2 STD: Fig. 19			
TITLE:	Congestion Control			
SUB TI	TLE: Timer 17			
PURPO	SE: To check timer T7 is restarted at the reception of SIB (without exp	piring of T6)		
PRE-TE	ST CONDITIONS: Link in service			
CONFI	CONFIGURATION: 1 TYPE OF TEST: VAT			
EXPEC	TED SIGNAL UNIT SEQUENCE:			
	SP B	SP A		
Link		Link		
1 - 0	SIB	1 – 0 MSU		
1 - 0	SIB> Ct			
1 - 0	SIB>	Т6		
1 - 0 FISU>				
TEST D	DESCRIPTION			
1. Generate an MSU at A.				
2.	Generate SIBs at B with the time intervals of T5 for Ct, instead of positive acknowledgement.			
3.	3. Check that link remains in service during Ct.			
- 4.	Send FISU with positive acknowledgement from B after Bt expires.			
5.	Check that link remains in service.			
6.	Ct = more than T7 and less than T6.			
7.	Bt = less than T7.			
8.	(Ct + Bt) is less than T6.			

TEST	TEST NUMBER: 10.3 PAGE: 1 OF 1			
REFEI	RENCE: Q.703 § 9.3 STD: Fig. 19	 		
TITLE	: Congestion Control			
SUB T	ITLE: Timer T6			
PURPO	OSE: To check "Remote Congestion" Timer T6	<u> </u>		
PRE-T	EST CONDITIONS: Link in service	.,		
CONFIGURATION: 1 TYPE OF TEST: VAT			FTEST: VAT	
EXPEC	CTED SIGNAL UNIT SEQUENCE:			
	SP B	SI	P A	
Link	Link			
1 - 1 -				
1 –	•		Т6	
1 –	• •			
	1 - 0 SIB>			
THOT F				
TEST DESCRIPTION				
1.	Generate SIB at B until Timer T6 expires.			
2.				
3. Timer T6 shall be in the range 3 secs to 6 secs (8 to 12 secs for 4.8 kbit/s).				



Note - First digit: linkset number. Second digit: link number.

FIGURE 1/Q.781

Test configuration of MTP level 2 test Configuration 1

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