INTERNATIONAL TELECOMMUNICATION UNION

ITU-T Q.783

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

SPECIFICATIONS OF SIGNALLING SYSTEM No. 7

TUP TEST SPECIFICATION

ITU-T Recommendation Q.783

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation Q.783 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).

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

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Recommendation Q.783

TUP TEST SPECIFICATION

1 Introduction

This Recommendation contains a set of detailed tests for the Signalling System No. 7 Telephony User Part (TUP). These tests are intended to validate the protocol specified in Q.721-Q.724 Recommendations. This Recommendation conforms to Q.780 Recommendations which describes the basic rules of the test specification.

2 General principles of TUP tests

The TUP tests aim at testing TUP protocol conformance in a given implementation. The tests are described as "Validation" tests or "Validation" and "Compatibility" tests. Each test description indicates in the field "type of test" whether the test is "Validation" or "Validation" and "Compatibility". As the TUP also describes the required call control actions resulting from TUP message transfer the TUP tester also checks the result of those call control actions, e.g. that speech/information transfer is possible.

3 Test configuration

A stable signalling relation is required between "SP A" and "SP B" in order to effectively test the TUP. In addition telephony circuits are required for some of the tests.

4 TUP test list

All tests may be validation tests. Tests marked "*" are compatibility tests. Tests marked "fs" are for further study.

1 *Circuit supervision*

* 1.1 Non allocated circuits

1.2 Reset of circuits

1.2.1 RSC received on an idle circuit

1.2.2 RSC sent on an idle circuit

1.2.3 Group reset received

1.2.4 Group reset sent

1.3 Blocking of circuits

1.3.1 Group blocking/unblocking

1.3.1.1 HGB received

1.3.1.2 HGB sent

* 1.3.1.3 MGB received

* 1.3.1.4 MGB sent

1.3.2 Circuit blocking/unblocking

* 1.3.2.1 BLO received

* 1.3.2.2 BLO sent

* 1.3.2.3 Circuit blocking from both ends; removal of blocking from one end

1.3.2.4 Interruption for FDM circuits

1.4 Continuity check test call

* 1.4.1 CCTC received: successful

* 1.4.2 CCTC sent: successful

1.4.3 CCTC received: unsuccessful

1.4.4 CCTC sent: unsuccessful

1.5 Receipt of unreasonable signalling information

1.5.1 Received

2 *Normal call set-up*

2.1 Both way circuit selection

* 2.1.1 IAM sent by controlling SP

* 2.1.2 IAM sent by non controlling SP

2.2 Called address sending

* 2.2.1 "en bloc" operation

* 2.2.2 Overlap operation

2.3 Successful call set-up

2.3.1 Ordinary call (with various ACM and ANS)

* 2.3.2 Call switched via satellite

* 2.3.3 Test for echo suppressor call set-up

* 2.3.4 Blocking and unblocking during a call (initiated)

* 2.3.5 Blocking and unblocking during a call (received)

3 *Normal call release*

* 3.1 Calling party clears: before ACM

* 3.2 Calling party clears: before ANS

* 3.3 Calling party clears: after ANS

* 3.4 Calling party clears: after CLEAR BACK

* 3.5 Reanswer

4 *Unsuccessful set-up*

4.1 SEC

4.1.1 SEC received

4.1.2 SEC sent

4.2 CGC

4.2.1 CGCreceived

4.2.2 CGC sent

4.3 NNC

4.3.1 NNC received

4.3.2 NNC sent

4.4 ADI

* 4.4.1 ADI received

* 4.4.2 ADI sent

4.5 CFL

4.5.1 CFL received

4.5.2 CFL sent

4.6 SSB

* 4.6.1 SSB received

* 4.6.2 SSB sent

4.7 UNN

* 4.7.1 UNN received

* 4.7.2 UNN sent

4.8 LOS

4.8.1 LOS received

4.8.2 LOS sent

4.9 SST

4.9.1 SST received

4.9.2 SST sent

4.10 ACB

4.10.1 ACB received

4.10.2 ACB sent

4.11 DPN

4.11.1 DPN received

4.11.2 DPN sent

5 *Abnormal situation during a call*

5.1 Inability to release in response to a CLF

5.2 Inability to release in response to a backward signal

5.3 Timers

5.3.1 T2

5.3.2 T3

5.3.3 T4

5.3.4 T5

5.3.5 T6

* 5.3.6 ANS signal not received (Q.118 Timer)

* 5.3.7 Delay in clearing by calling party (Q.118 Timer)

5.4 Reset of circuits during a call

5.4.1 Of an outgoing circuit

5.4.2 Of an incoming circuit

5.5 Receipt of unreasonable signalling information

5.5.1 (Now test No. 1.5.1)

fs 5.5.2 Received

5.6 Interruption of signalling relation

6 *Special call set-up*

6.1 Continuity check call

* 6.1.1 COT applied on an outgoing circuit

* 6.1.2 COT applied on previous circuit

* 6.1.3 COT on a satellite circuit

6.1.4 Calling party clears during a COT

* 6.1.5 Delay of through connect

6.1.6 COT unsuccessful

6.1.7 COT received on incoming circuit

6.2 Automatic repeat attempt

6.2.1 Dual seizure

6.2.2 Circuit reset

6.2.3 Reception of unreasonable signal information

* 6.2.4 Blocking of the circuit

6.2.5 Continuity check failure

6.3 Dual seizure

6.3.1 Dual seizure for controlling side

7 *Supplementary services*

fs 7.1 CUG

fs 7.2 User access to the calling line identity

fs 7.3 User access to the called line identity

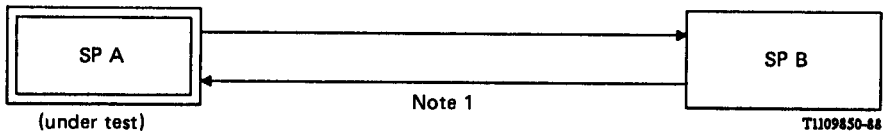
fs 7.4 Redirection of calls

fs 7.5 CCBS

fs 7.6 Network access to calling line identity

8 *Performance tests*

Note - For further study.



Note 1 – The arrows indicate a signalling relation, and any necessary telephone circuits.

FIGURE 1/Q.783

Test configuration for TUP level 4 tests
Configuration 1

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.1

REFERENCE :

TITLE : Circuit supervision

SUBTITLE : Non-allocated circuits

PURPOSE : To verify that on receipt of a CIC relating to a circuit which does not exist, SP A will discard the message and alert maintenance personnel

PRE-TEST CONDITIONS : Arrange the data in signalling point B such that the CIC identifies a circuit that does not exist between SP A and SP B

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
	⟨----------	IAM

TEST DESCRIPTION

1.	Arrange for SP B to send an initial address message. Record the message sequence using a signal monitor.
2.	CHECK A: IS THE CIRCUIT IDLE ? .....
3.	CHECK B: WAS THE MESSAGE SEQUENCE AS SHOWN ABOVE? .....
4.	CHECK C: WAS THE INDICATION GIVEN TO THE MAINTENANCE PERSONNEL? .....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.2.1

REFERENCE : Q.724 § 1.15.1

TITLE : Reset of circuits

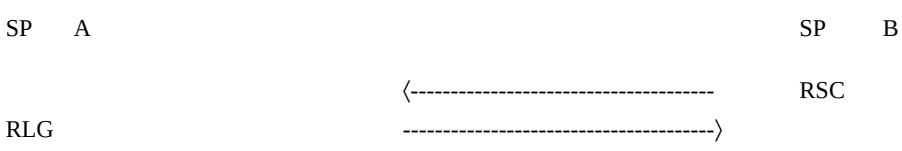
SUBTITLE : RSC received on an idle circuit

PURPOSE : To verify that on receipt of a reset circuit signal SP A will respond by sending a release guard signal

PRE-TEST CONDITIONS : The circuit is idle

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Arrange for SP B to send a reset-circuit signal.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE CIRCUIT IDLE ? .....
3. CHECK B : WAS THE MESSAGE SEQUENCE AS ABOVE ? .....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.2.2

REFERENCE : Q.724 § 1.15.1

TITLE : Reset of circuits

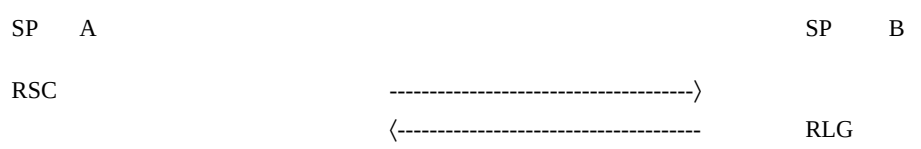
SUBTITLE : RSC sent on an idle circuit

PURPOSE : To verify that SP A is able to generate reset-circuit signal

PRE-TEST CONDITIONS : The circuit is idle

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Arrange for SP A to send a reset-circuit signal.
	Record the message sequence using a signal monitor.
2.	CHECK A: IS THE CIRCUIT IDLE ? .....
3.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE ? .....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 1.2.3

REFERENCE : Q.724 § 1.15.2

TITLE : Reset of circuits

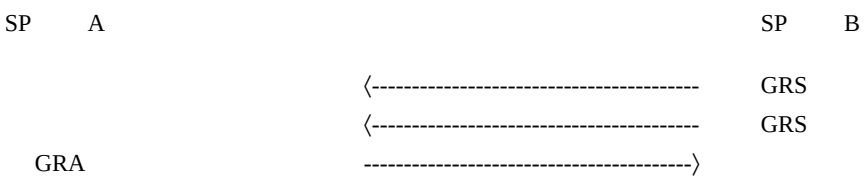
SUBTITLE : Group reset received

PURPOSE : To verify that on receipt of two circuit group reset message within a period of 5 seconds, SP A will respond by sending a circuit reset acknowledge message

PRE-TEST CONDITIONS :

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Arrange for SP B to send two circuit group reset messages within a period of 5 seconds. Record the message sequence using a signal monitor.
2.	CHECK A : IS THE CIRCUIT IDLE ?.....
3.	CHECK B : WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.2.4

REFERENCE : Q.724 § 1.15.2

TITLE : Reset of circuits

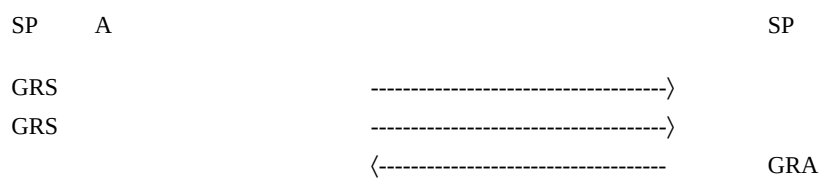
SUBTILE : Group reset sent

PURPOSE : To verify that SP A is able to generate a circuit group reset message

PRE-TEST CONDITIONS

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Arrange for SP A to send two circuit group reset messages within a period of 5 seconds. Record the message sequence using a signal monitor.
2.	CHECK A : IS THE CIRCUIT GROUP IDLE ?....
3.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.3.1.1

REFERENCE : Q.724 § 5.2

TITLE : Group blocking/unblocking

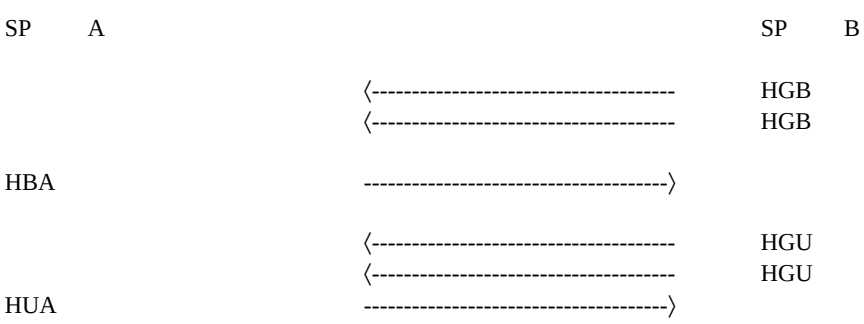
SUBTITLE : HGB received

PURPOSE : To verify that the hardware failure group blocking procedure can be correctly initiated

PRE-TEST CONDITIONS :

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Arrange for SP B to send two hardware failure oriented group blocking messages within a period of 5 seconds. Record the message sequence using a signal monitor.
2.	CHECK A: VERIFY THAT CAN ONLY BE ORIGINATED FROM SP B ON THE CIRCUITS INDICATED BY THE RANGE FIELD IN THE HGB MESSAGE
3.	Arrange for SP B to send two hardware failure oriented group unblocking messages within a period of 5 seconds.
4.	CHECK B: VERIFY THAT A CALL CAN BE ORIGINATED FROM EITHER SP ON THE CIRCUITS INDICATED BY THE RANGE FIELD
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.3.1.2

REFERENCE : Q.724 § 5.2

TITLE : Group blocking/unblocking

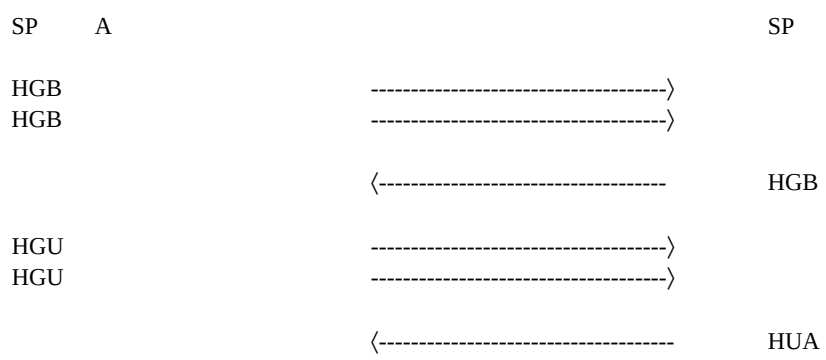
SUBTITLE : HGB sent

PURPOSE : To verify that SP A is able to generate both hardware failure oriented group blocking messages and hardware failure oriented group unblocking messages

PRE-TEST CONDITIONS :

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Arrange for SP A to send two hardware failure oriented group blocking messages within a period of 5 seconds. Record the message sequence using a signal monitor.
2.	CHECK A: VERIFY THAT A CALL CAN ONLY BE ORIGINATED FROM SP A ON THE CIRCUITS INDICATED BY THE RANGE FIELD IN THE HGB MESSAGE
3.	Arrange for SP A to send two hardware failure oriented group unblocking messages within a period of 5 seconds.
4.	CHECK B: VERIFY THAT A CALL CAN BE ORIGINATED FROM EITHER SP ON THE CIRCUITS INDICATED BY THE RANGE FIELD
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.3.1.3

REFERENCE : Q.724 § 5.1

TITLE : Group blocking/unblocking

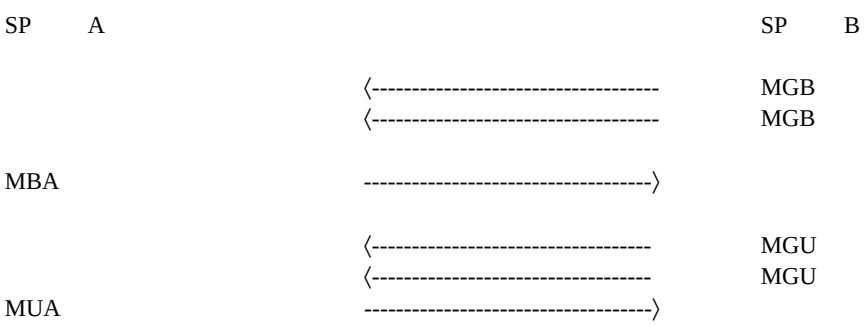
SUBTITLE : MGB received

PURPOSE : To verify that the maintenance oriented group blocking procedure can be correctly initiated

PRE-TEST CONDITIONS :

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Arrange for SP B to send two maintenance oriented group blocking messages within a period of 5 seconds. Record the message sequence using a signal monitor.
2.	CHECK A: VERIFY THAT A CALL CAN ONLY BE ORIGINATED FROM SP B ON THE CIRCUITS INDICATED BY THE RANGE FIELD IN THE MGB MESSAGE
3.	Arrange for SP B to send two maintenance oriented group unblocking messages within a period of 5 seconds.
4.	CHECK B: VERIFY THAT A CALL CAN BE ORIGINATED FROM EITHER SP ON THE CIRCUITS INDICATED BY THE RANGE FIELD
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.3.1.4

REFERENCE : Q.724 § 5.1

TITLE : Group blocking/unblocking

SUBTITLE : MGB sent

PURPOSE : To verify that SP A is able to generate both maintenance oriented group blocking messages and maintenance oriented group unblocking messages

PRE-TEST CONDITIONS :

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

EXPECTED MESSAGE SEQUENCE :

TEST DESCRIPTION

1.	Arrange for SP A to send two maintenance oriented group blocking messages within a period of 5 seconds. Record the message sequence using a signal monitor.
2.	CHECK A: VERIFY THAT A CALL CAN ONLY BE ORIGINATED FROM SP A ON THE CIRCUITS INDICATED BY THE RANGE FIELD IN THE MGB MESSAGE
3.	Arrange for SP A to send two maintenance oriented group unblocking messages within a period of 5 seconds.
4.	CHECK B: VERIFY THAT A CALL CAN BE ORIGINATED FROM EITHER SP ON THE CIRCUIT INDICATED BY THE RANGE FIELD
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.3.2.1

REFERENCE : Q.724 § 5.1

TITLE : Group blocking/unblocking

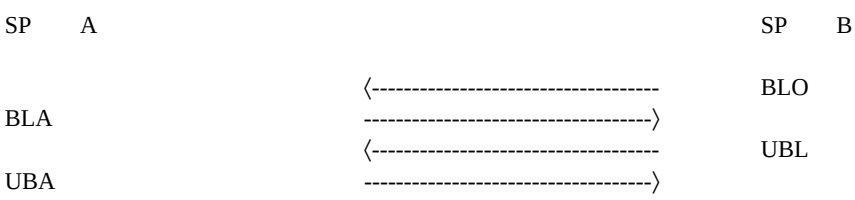
SUBTITLE : BLO received

PURPOSE : To verify that the blocking/unblocking procedure can be correctly initiated

PRE-TEST CONDITIONS :

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Arrange for SP B to send a blocking signal. Record the message sequence using a signal monitor.
2.	CHECK A: VERIFY THAT A CALL CAN ONLY BE ORIGINATED FROM SP B ON THIS CIRCUIT
3.	Arrange SP B to send an unblocking signal.
4.	CHECK B: VERIFY THAT A CALL CAN BE ORIGINATED FROM EITHER EXCHANGE ON THIS CIRCUIT
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.3.2.2

REFERENCE : Q.724 § 5.1

TITLE : Circuit blocking/unblocking

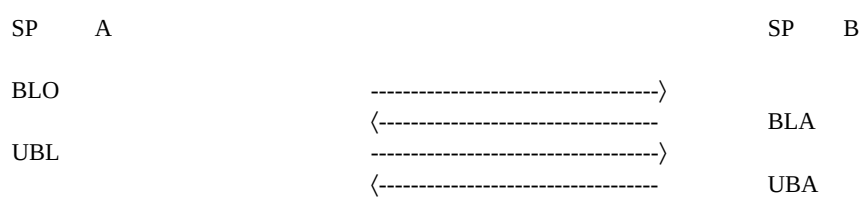
SUBTITLE : BLO sent

PURPOSE : To verify that SP A is able to generate blocking messages

PRE-TEST CONDITIONS :

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Arrange for SP A to send a blocking signal. Record the message sequence using a signal monitor.
2.	CHECK A: VERIFY THAT A CALL CAN ONLY BE ORIGINATED FROM SP A ON THIS CIRCUIT
3.	Arrange for SP A to send an unblocking signal.
4.	CHECK B: VERIFY THAT A CALL CAN BE ORIGINATED FROM EITHER SP ON THIS CIRCUIT
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS SHOWN ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.3.2.3

REFERENCE : Q.724 § 5.1

TITLE : Circuit blocking/unblocking

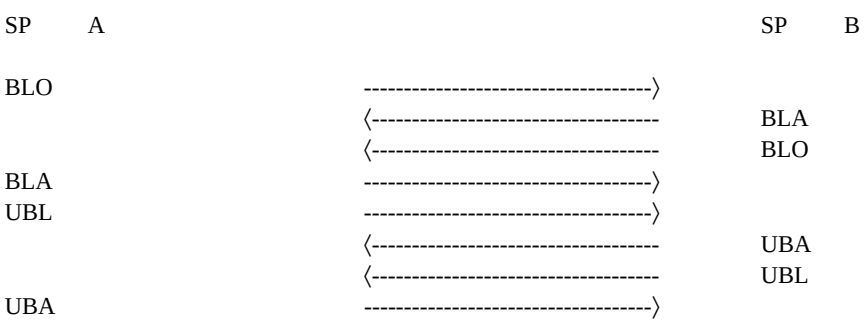
SUBTITLE : Blocking from both ends : removal of blocking from one end

PURPOSE : To verify that the blocking/unblocking procedure can be correctly initiated

PRE-TEST CONDITIONS :

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Arrange for SP A to send a blocking signal.
   Record the message sequence using a signal monitor.
2. CHECK A: VERIFY THAT A CALL CAN ONLY BE ORIGINATED FROM SP A ON THIS CIRCUIT
3. Arrange for SP B to send an unblocking signal.
4. CHECK B: VERIFY THAT A CALL CANNNOT BE ORIGINATED ON THIS CIRCUIT EITHER SP
5. Arrange for SP A to send an unblocking signal.
6. CHECK C: VERIFY THAT A CALL CAN ONLY BE ORIGINATED BY SP B
7. Arrange for SP B to send an unblocking signal.
8. CHECK D : WAS THE MESSAGE SEQUENCE AS ABOVE?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.3.2.4

REFERENCE : Q.724 § 9.2

TITLE : Circuit blocking/unblocking

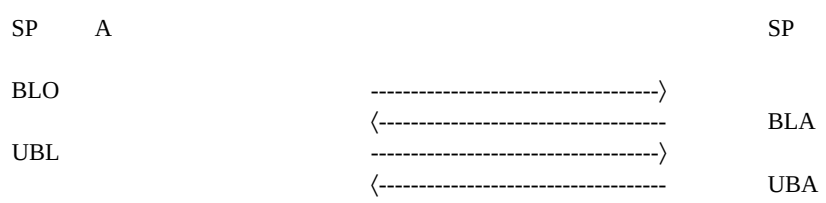
SUBTITLE : Interruption from FDM circuits

PURPOSE : To verify that an interruption of the pilot in FDM system causes a blocking signal to be sent

PRE-TEST CONDITIONS : The signalling points must be linked by a transmission system using FDM

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Arrange for the reception of the pilot signal at SP A to be interrupted more than 4-15 seconds.
   Record the mesage sequence using a signal monitor.
2. CHECK A: CONFIRM THAT A CALL CANNOT BE INITIATED BY EITHER SP
3. Arrange for the interruption of the pilot tone to be terminated.
4. CHECK B: CONFIRM THAT A CALL CAN BE INITIATED BY EITHER SP AFTER A PERIOD OF 4-15 SECONDS
5. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.4.1

REFERENCE : Q.724 § 7.5

TITLE : Continuity check test call

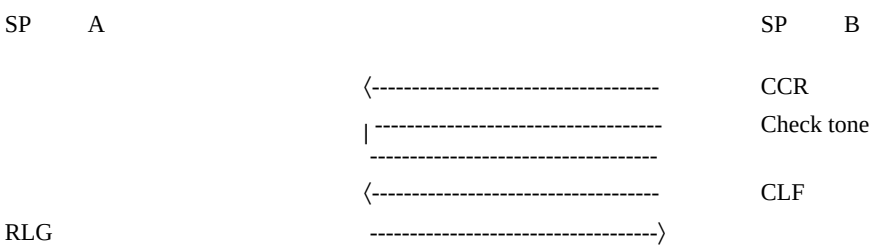
SUBTITLE : CCTC received : Succesful

PURPOSE : To verify that the continuity test call procedure can be correctly performed

PRE-TEST CONDITIONS : Circuit must be idle

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Initiate the continuity test call procedure at SP B. Record the message sequence using a signal monitor.
2.	CHECK A: IS THE CIRCUIT IDLE ? .....
3.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.4.2

REFERENCE : Q.724 § 7.5

TITLE : Continuity check test call

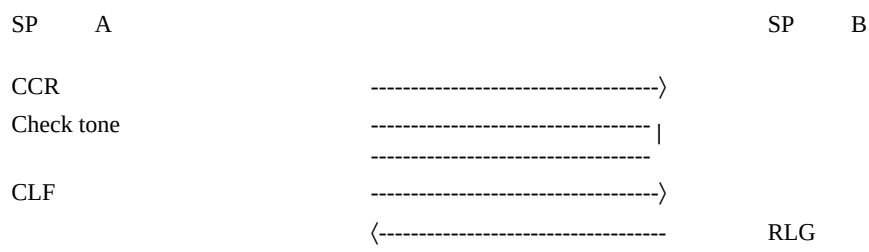
SUBTITLE : CCTC send : successful

PURPOSE : To verify that the continuity test call procedure can be correctly performed

PRE-TEST CONDITIONS : Circuit must be idle

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Initiate the continuity test call procedure at SP A Record the message sequence using a signal monitor.
2.	CHECK A: IS THE CIRCUIT IDLE ? .....
3.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.4.3

REFERENCE : Q.724 § 7.5

TITLE : Continuity check test call

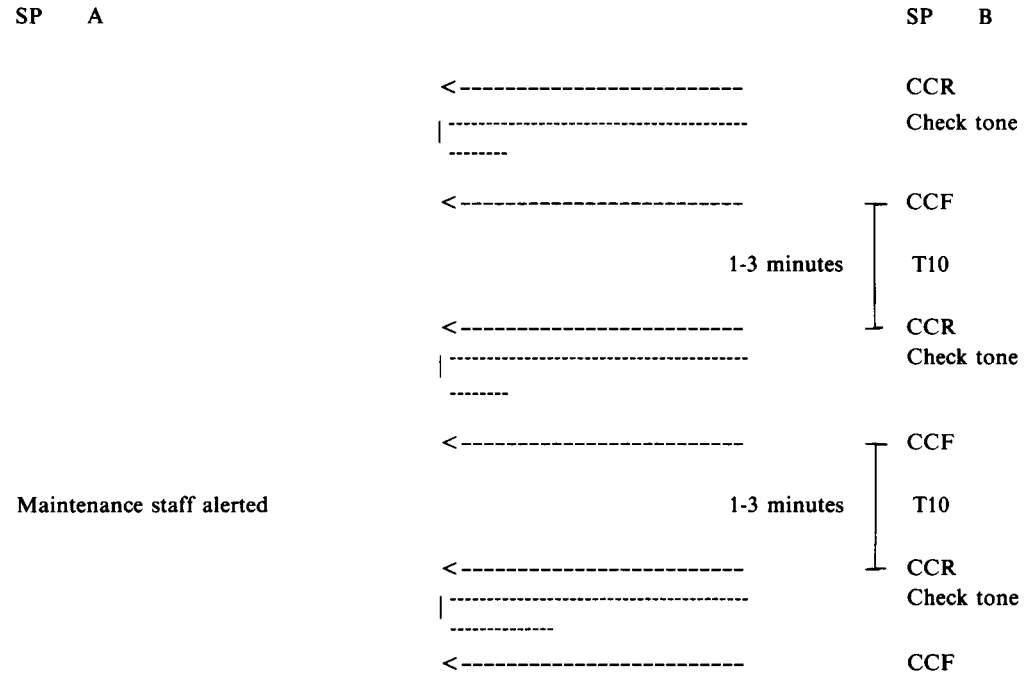
SUBTITLE : CCTC received : unsuccessful

PURPOSE : To verify that the continuity check procedure can be correctly received

PRE-TEST CONDITIONS : Ensure that no backward check tone is detected within the specified time out

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.		Initiate the continuity test call procedure at SP B. Record the message sequence using a signal monitor.
2.	CHECK A:	WAS THE SECOND CONTINUITY CHECK INITIATED WITHIN 1 TO 3 MINUTES?....
3.	CHECK B:	WERE THE MAINTENANCE STAFF ALERTED ON FAILURE OF THE SECOND CONTINUITY CHECK?.....
4.	CHECK C:	WAS THE CHECK REPEATED AT INTERVALS OF 1 TO 3 MINUTES?.....
5.	CHECK D:	WAS THE MESSAGE SEQUENCE AS ABOVE?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.4.4

REFERENCE : Q.724 § 7.5.3

TITLE : Continuity check test call

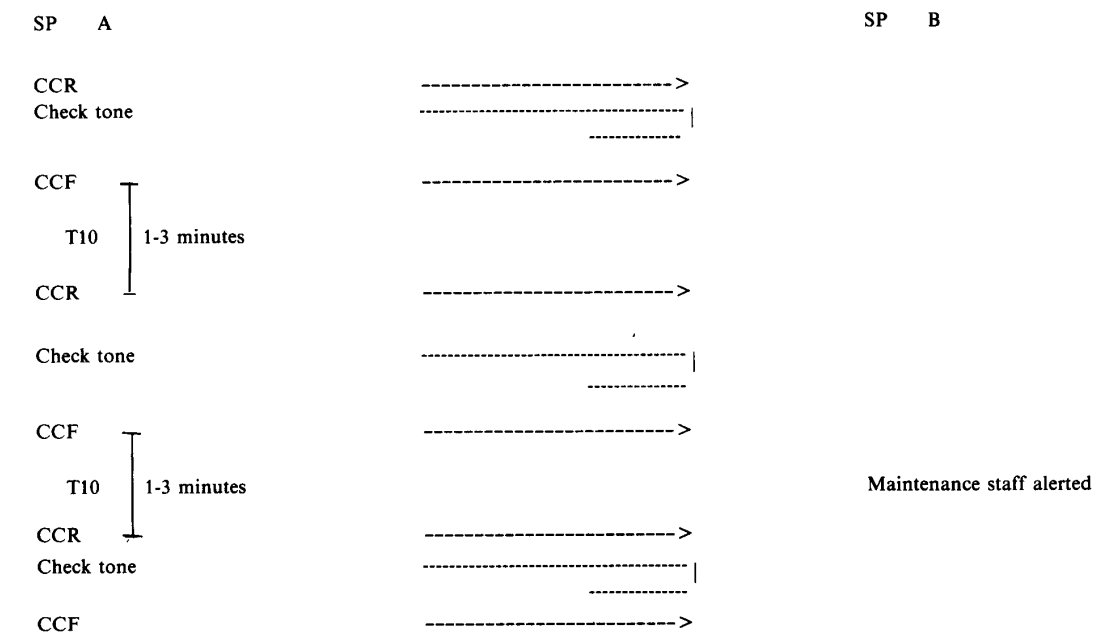
SUBTITLE : CCTC sent : unsuccesful

PURPOSE : To verify that the continuity test call procedure can be correctly invoked

PRE-TEST CONDITIONS : Ensure that no backward tone is detected within the specified timeout

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Initiate the continuity test call procedure at SP A.
   Record the message sequence using a signal monitor.

2. CHECK A: WAS THE SECOND CONTINUITY CHECK INITIATED WITHIN 1 TO 3 MINUTES?...

3. CHECK B: WERE THE MAINTENANCE STAFF ALERTED ON FAILURE OF THE SECOND CONTINUITY CHECK?....

4. CHECK C: WAS THE CHECK REPEATED AT INTERVALS OF 1 TO 3 MINUTES?....

5. CHECK D: WAS THE MESSAGE SEQUENCES AS ABOVE?...

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 1.5.1

REFERENCE : Q.724 § 6.5

TITLE : Receipt of unreasonable information

SUBTITLE : Received

PURPOSE : To verify that the action taken by a signalling point upon receipt of unreasonable signalling information is as stated in Q.724 § 6.5

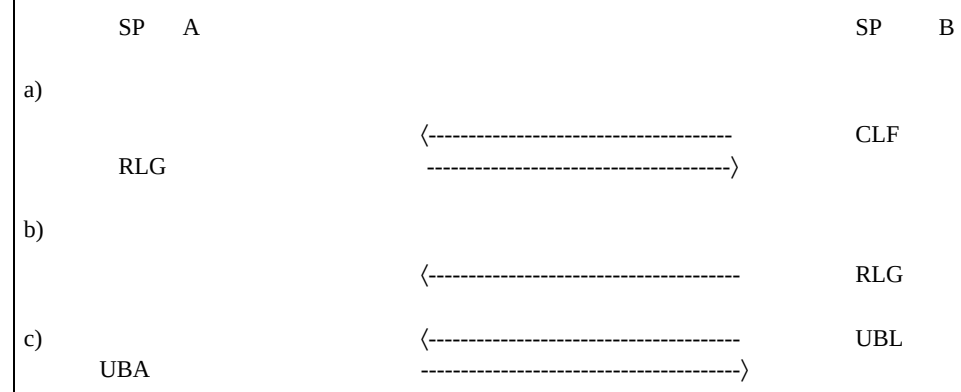
PRE-TEST CONDITIONS :

a) Arrange the data in signalling point B such that CLF, RLG, and UBL messages may be initiated

b) The circuit should be idle and unblocked

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Arrange for SP B to send a clear forward signal.
2.	CHECK A: IS THE CIRCUIT IDLE ?.....
3.	CHECK B: WAS THE MESSAGE SEQUENCE AS IN a) ABOVE ?.....
4.	Arrange for SP B to send a release guard signal.
5.	CHECK C: IS THE CIRCUIT IDLE ?.....
6.	CHECK D: WAS THE MESSAGE SEQUENCE AS IN b) ABOVE ?.....
7.	Arrange for SP B to send an unblocking signal.
8.	CHECK E: IS THE CIRCUIT IDLE ?.....
9.	CHECK F: WAS THE MESSAGE SEQUENCE AS IN c) ABOVE ?.....

Note - This test covers only some of the ambiguous messages which could be received

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 2.1.1

REFERENCE : Q.724 § 1

TITLE : Both way circuit selection

SUBTITLE : IAM sent by controlling SP

PURPOSE : To verify that signalling point A can initiate an outgoing call on a circuit capable of bothway operation when the controlling SP is A

PRE-TEST CONDITIONS :

a) Called termination is free

b) Circuit selected is capable of bothway operation

c) Circuit selected is as in test number 2.1.2

d) SP A is the controlling signalling point

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
	⟨----------	ANC
Speech	– – – – – – – – – – – – – – – –	Speech
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1.	Make a call from SP A TO SP B. Record the message sequence using a signal monitor.
2.	CHECK A: CAN RINGING TONE BE HEARD ?.....
3.	The called party should answer the call.
4.	CHECK B: IS SPEECH POSSIBLE ?....
5.	The calling party should clear the call.
6.	CHECK C: IS THE CIRCUIT IDLE ?.....
7.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 2.1.2

REFERENCE : Q.724 § 1

TITLE : Bothway circuit selection

SUBTITLE : IAM sent by non-controlling SP

PURPOSE : To verify that signalling point A can initiate an outgoing call on a circuit capable of bothway when the non-controlling SP is A

PRE-TEST CONDITIONS :

a) Called termination is free

b) Circuit selected is capable of bothway operation

c) Circuit selected is as in test number 2.1.1

d) SP B is the controlling signalling point

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
	⟨----------	ANC
Speech	– – – – – – – – – – – – – – – –	
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1.	Make a call from SP A to SP B. Record the message sequence using a signal monitor.
2.	CHECK A: CAN RINGING TONE BE HEARD?....
3.	The called party should answer the call.
4.	CHECK B: IS SPEECH POSSIBLE ?.....
5.	The calling party should clear the call.
6.	CHECK C: IS THE CIRCUIT IDLE ?.....
7.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 2.2.1

REFERENCE : Q.724 § 1

TITLE : Called address sending

SUBTITLE :"EN BLOC" operation

PURPOSE : To verify that a call can be successfully established (all included in the IAM)

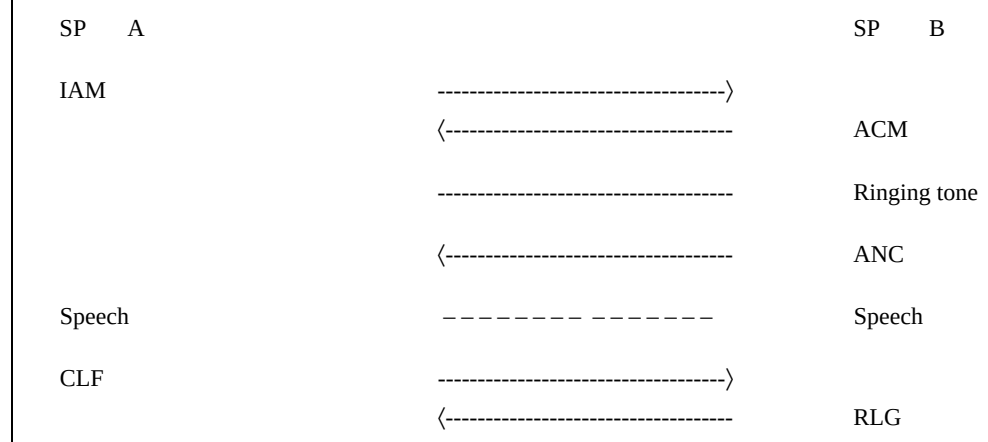
PRE-TEST CONDITIONS :

a) Called termination is free

b) The exchange data is arranged such that all digits are included in the IAM

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Make a call from SP A to SP B. Record the message sequence using a signal monitor.
2.	CHECK A: IS RINGING TONE BE HEARD?....
3.	The called party should answer the call.
4.	CHECK B: IS SPEECH POSSIBLE ?.....
5.	The calling party should clear the call.
6.	CHECK C: IS THE CIRCUIT IDLE ?.....
7.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....
8.	For validation testing repeat this test in the reverse direction
	Where SPA is in a position to know, by digit analysis that the final digit has been sent. Confirm that an End-of-pulsing (ST) signal is included in the IAM.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 2.2.2

REFERENCE : Q.724 § 1

TITLE : Called address sending

SUBTITLE : Overlap operation (with SAM and SAO)

PURPOSE : To verify that signalling point A can initiate a call using an IAM followed by SAM and a SAO

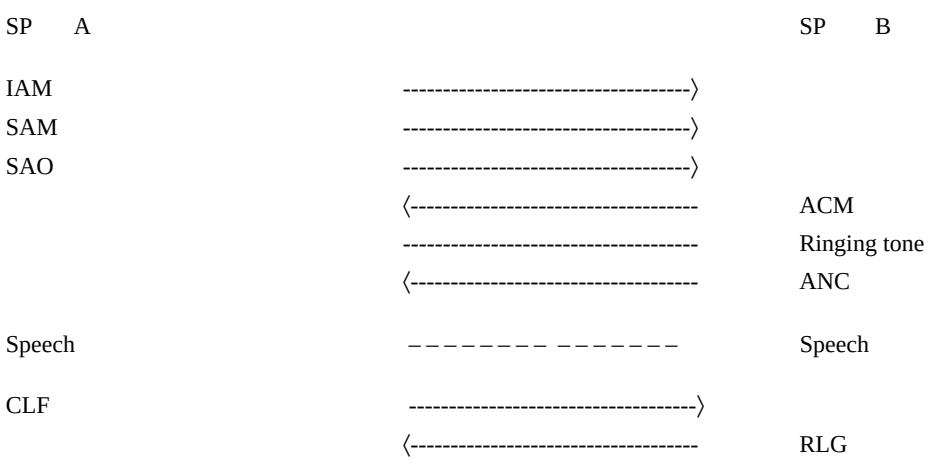
PRE-TEST CONDITIONS :

a) Called termination is free

b) The signalling point data is arranged such that digits are generated in a IAM followed by a SAM and a SAO

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE ?.....
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE ?.....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....
8. For validation testing repeat this test in the reverse direction.

Note - The message flown may not be as above
(There may be various SAMS and SAOs).

Where SPA is in position to know by digit analysis that the final digit has been sent. Confirm that an end-of-pulsing (ST) signal is included in the last address message.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 2.3.1

REFERENCE : Q.724 § 1.6 and 1.10

TITLE :Successful call set-up

SUBTITLE : Ordinary call (with various ACM and ANS)

PURPOSE : To verify that a call can be successful completed using various combinations of address complete messages and answer messages

PRE-TEST CONDITIONS : Called termination is free

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
	⟨----------	ANC
Speech	– – – – – – – – – – – – –	Speech
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: CAN RINGING TONE BE HEARD?....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE ?.....
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE ?.....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....
8. Repeat steps 1-7 with all combinations of bits A&B in the address complete message.
9. Repeat steps 1-8 with ANC replaced with an ANN.
10. Repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 2.3.2

REFERENCE : Q.724 § 1

TITLE :Successful call set-up

SUBTITLE : Call switched via a satellite

PURPOSE : To verify the satellite indicator in the initial address message is correctly set

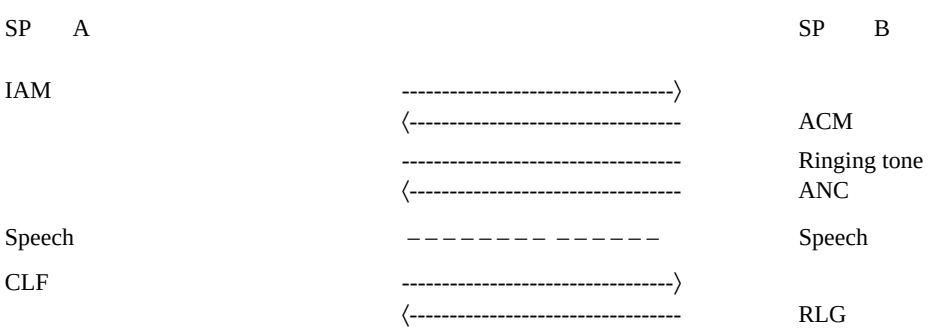
PRE-TEST CONDITIONS :

a) Called termination is free

b) The signalling point data is arranged such that the call is switched via satellite connection or has a satellite connection already included in the path

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE ?.....
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE ?.....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....
8. CHECK E: WAS THE SATELLITE INDICATOR BIT IN THE IAM SET TO 1?...
9. For validation testing repeat this in the reverse direction?...

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 2.3.3

REFERENCE : Q.724 § 11

TITLE : Successful call set-up

SUBTITLE : Test for echo suppressor call set-up

PURPOSE : To verify that a call can be successful established with the inclusion of echo suppressors

PRE-TEST CONDITIONS :

a) Called termination is free

b) The signalling point data is arranged such that the call is routed over a route requiring echo suppressors or already has an echo suppressor included in the connection

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
	⟨----------	ANC
Speech	– – – – – – – – – – – – –	Speech
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?....
3. The called party should answer.
4. CHECK B: IS SPEECH POSSIBLE?...
5. CHECK C: IS ECHO PERCEIVED BY EITHER PARTY?...
6. The calling party should clear the call.
7. CHECK D: IS THE CIRCUIT IDLE?....
8. CHECK E: WAS THE MESSAGE SEQUENCE AS ABOVE?....
9. CHECK F: WAS THE MESSAGE INDICATOR BIT G (OUTGOING HALF ECHO SUPPRSSOR INCLUDED) IN THE IAM SET TO 1?.....
10. CHECK G: WAS THE MESSAGE INDICATOR BIT D (INCOMING HALF ECHO SUPPRESSOR INCLUDED) IN THE ACM SET TO 1?....
11. For validation testing repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 2.3.4

REFERENCE : Q.724 § 5

TITLE : Successful call set-up

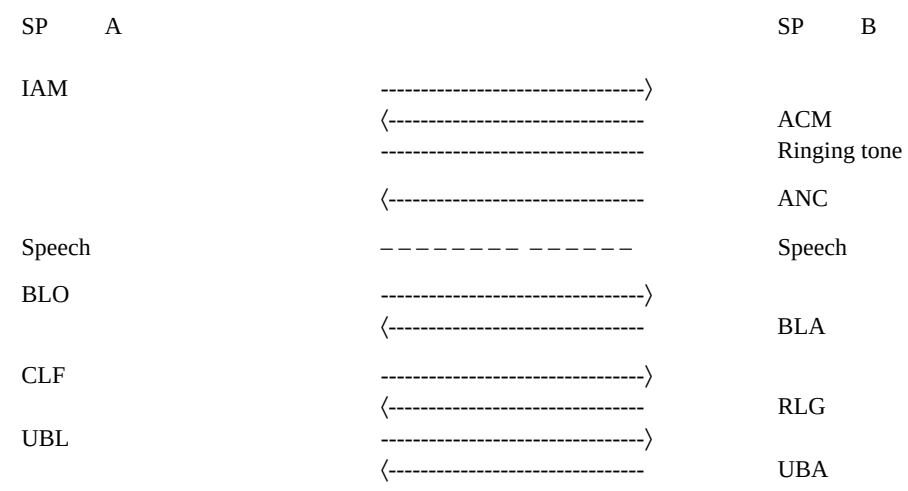
SUBTITLE : Blocking and unblocking during a call (initiated)

PURPOSE : To verify that the circuit blocking and unblocking procedure can be correctly initiated during a call

PRE-TEST CONDITIONS : Called termination is free

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: CAN RINGING TONE BE HEARD?.....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?....
5. SP A should initiate circuit blocking relating to the circuit used for this call.
6. CHECK C: IS SPEECH STILL POSSIBLE?....
7. The calling party should clear the call.
8. CHECK D: VERIFY THAT A CALL CAN ONLY BE ORIGINATED ON THIS CIRCUUIT BY SPA?..
9. SP A should send an unblocking signal.
10. CHECK E: VERIFY THAT A CALL CAN BE SUCCESSFULLY ORIGINATED FROM EITHER SP.
11. CHECK F: WAS THE MESSAGE SEQUENCE AS ABOVE?.....
12. Repeat this test in the reverse direction.

Note - The blocking signal may be generated after the call has cleared.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 2.3.5

REFERENCE : Q.724 § 5

TITLE : Successful call set-up

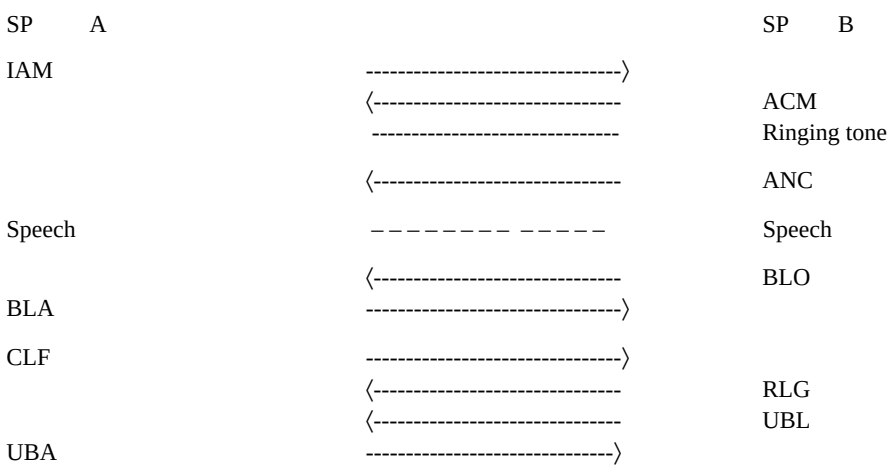
SUBTITLE : blocking and unblocking during a call (received)

PURPOSE : To verify that the circuit blocking and unblocking procedure can be correctly received during a call

PRE-TEST CONDITIONS : Called termination is free

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: CAN RINGING TONE BE HEARD?.....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?....
5. SP B should initiate circuit blocking relating to the circuit used for this call.
6. CHECK C: IS SPEECH STILL POSSIBLE?....
7. The calling party should clear the call.
8. CHECK D: VERIFY THAT A CALL CAN ONLY BE ORIGINATED ON THIS CIRCUUIT BY SPB?..
9. SP B should send an unblocking signal.
10. CHECK E: VERIFY THAT A CALL CAN BE SUCCESSFULLY ORIGINATED FROM EITHER SP.
11. CHECK F: WAS THE MESSAGE SEQUENCE AS ABOVE?.....
12. Repeat this test in the reverse direction.

Note - The blocking signal may be generated after the call has cleared.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 3.1

REFERENCE : Q.724 § 1.14

TITLE : Normal call release

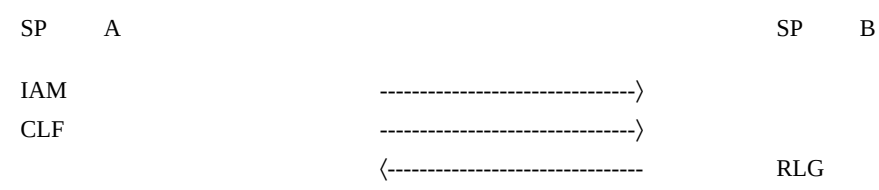
SUBTITLE : Calling party clears before address complete

PURPOSE : To verify that calling party can successfully release a call prior to receipt of an address complete message

PRE-TEST CONDITIONS :

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. The calling party should clear the call prior to receipt of the address complete signal.
3. CHECK A: IS THE CIRCUIT IDLE?....
4. CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?.....
5. Repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 3.2

REFERENCE : Q.724 § 1.14

TITLE : Normal call release

SUBTITLE : Calling party clears before answer

PURPOSE : To verify that calling party can successfully release a call prior to receipt answer

PRE-TEST CONDITIONS : Called termination is free

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?....
3. The calling party should clear the call prior to receipt of an answer signal.
4. CHECK B: IS THE CIRCUIT IDLE?.....
5. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?....
6. For validation testing this test should be repeat in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 3.3

REFERENCE : Q.724 § 1.14

TITLE : Normal call release

SUBTITLE : Calling party clears before answer

PURPOSE : To verify that the calling party can successfully release a call in the speech state

PRE-TEST CONDITIONS : Called termination is free

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
	⟨ ----------	ANC
Speech	– – – – – – – – – – – – –	Speech
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?...
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?.....
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE?.....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?....
8. For validation testing this test should be repeated in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 3.4

REFERENCE : Q.724 § 1.14

TITLE : Normal call release

SUBTITLE : Called party clears

PURPOSE : To verify that the calling party can successfully release a call in the clear back state

PRE-TEST CONDITIONS : Called termination is free

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
	⟨----------	ANC
Speech	– – – – – – – – – – – – –	Speech
	⟨----------	CBK
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?...
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?.....
5. The called party should clear the call.
6. The calling party should clear the call.
7. CHECK C: IS THE CIRCUIT IDLE?.....
8. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?....
9. For validation testing repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 3.5

REFERENCE : Q.724 § 1.14

TITLE : Normal call release

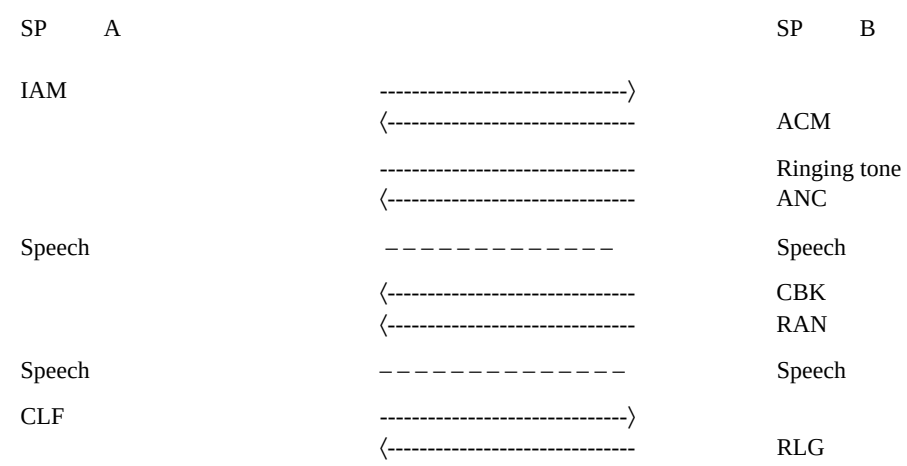
SUBTITLE : Called party clears and reanswers

PURPOSE : To verify that the called subscriber can successfully clear and reanswer a call in the speech state

PRE-TEST CONDITIONS : Called termination is free

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1.	Make a call from SP A to SP B. Record the message sequence using a signal monitor.
2.	CHECK A: IS RINGING TONE HEARD?.....
3.	The called party should answer the call.
4.	CHECK B: IS SPEECH POSSIBLE?.....
5.	The called party should clear the call.
6.	The called party should reanswer the call
7.	CHECK C: IS SPEECH STILL POSSIBLE?.....
8.	The calling party should clear the call.
9.	CHECK D: IS THE CIRCUIT IDLE?.....
10.	CHECK E: WAS THE MESSAGE AS ABOVE?.....
11.	For validation testing repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.1.1

REFERENCE : Q.724 § 1.8

TITLE : SEC

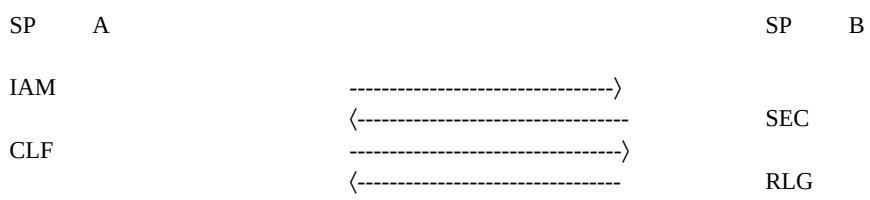
SUBTITLE : SEC received

PURPOSE : To verify the call will be immediately release by the outgoing signalling point if a switching equipment congestion signal is received and the correct indication is given to the calling party

PRE-TEST CONDITIONS : Arrange the data in signalling point B such that switching equipment congestion is returned to the request

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B.
   Record the message sequence using with a signal monitor.

2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?....

3. CHECK B: IS THE CIRCUIT IDLE?.....

4 CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.1.2

REFERENCE : Q.724 § 1.8

TITLE : SEC

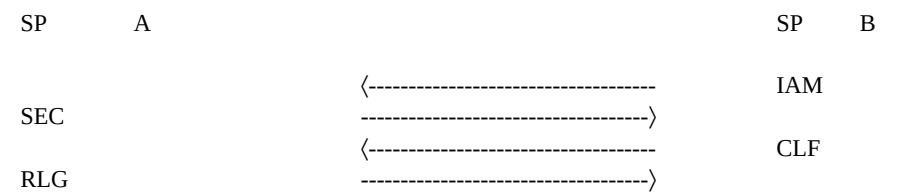
SUBTITLE : SEC sent

PURPOSE : To verify that SP A is able to generate a equipment congestion message

PRE-TEST CONDITIONS : Arrange the data in SP A such tha switching equipment congestion is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP B to SP A.
   Record the message sequence using with a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.2.1

REFERENCE : Q.724 § 1.8

TITLE : CGC

SUBTITLE : CGC received

PURPOSE : To verify that a call will be immediately released by the outgoing signalling point if a circuit group congestion signal is received and the correct indication is given to the calling party

PRE-TEST CONDITIONS : Arrange the data in signalling point B such that a circuit group congestion signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	---------->	
	<----------	CGC
CLF	---------->	
	<----------	RLG

TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUCEMENT RETURNED TO THE CALLING PARTY?....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - An address complete signal (without subscriber free) may be sent in the backward direction before a CGC signal is sent.

Note 2 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.2.2

REFERENCE : Q.724 § 1.8

TITLE : CGC

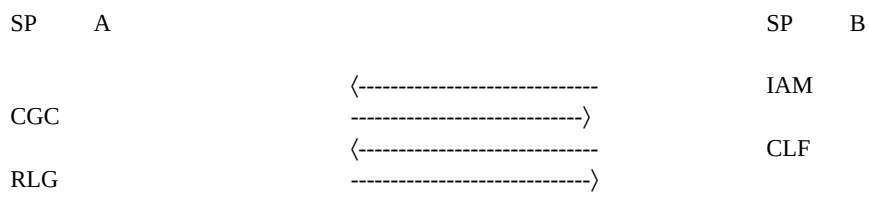
SUBTITLE : CGC sent

PURPOSE : To verify that SP A is able to generate a circuit group congestion signal

PRE-TEST CONDITIONS : Arrange the data in signalling point A such that a circuit group congestion signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP B to SP A.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?.....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE ?.....

Note 1 - An address complete signal (without subscriber free) may be sent in the backward direction before a CGC signal is sent.

Note 2 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.3.1

REFERENCE : Q.724 § 1.8

TITLE : NNC

SUBTITLE : NNC received

PURPOSE : To verify that the call will be immediately released by the outgoing signalling point if a national network congestion signal is received and the correct indication is given to the calling party

PRE-TEST CONDITIONS : Arrange the data in SP B such that a national network congestion signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	NNC
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUCEMENT RETURNED TO THE CALLING PARTY?.....
3. CHECK B: IS THE CIRCUIT IDLE ?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - An address complete signal (without subscriber free) may be sent in the backward direction before a NNC signal is sent.

Note 2 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test restransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.3.2

REFERENCE : Q.724 § 1.8

TITLE : NNC

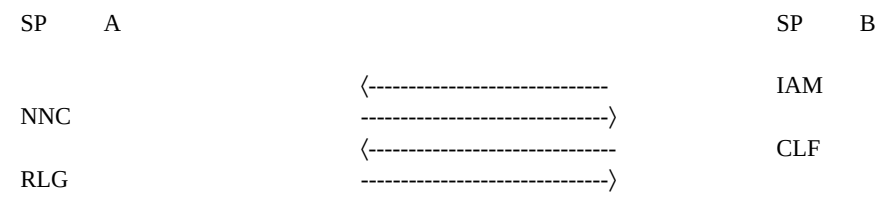
SUBTITLE : NNC sent

PURPOSE : To verify that SP A is able to generate a national network congestion signal

PRE-TEST CONDITIONS : Arrange the data in signalling point A such that a national network congestion signal is returned to the call request, where SP A is now an I/C exchange

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP B to SP A
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUCEMENT RETURNED TO THE CALLING PARTY?....
3. CHECK B: IS THE CIRCUIT IDLE?....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - An address complete signal (without subscriber free) may be sent in the backward direction before a NNC signal is sent.

Note 2 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER :4.4.1

REFERENCE : Q.724 § 1.7

TITLE : ADI

SUBTITLE : ADI received

PURPOSE : To verify that on receipt of an address incomplete message the call is immediately released and the correct indication given to the calling party

PRE-TEST CONDITIONS : Signalling point B should be able to determine that the proper number of digits has not been received

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	ADI
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Make a call from SP A to SP B, but do not enter the final digit.
Record the message sequence using a signal monitor.

2. CHECK A: WAS THE CORRECT TONE OR ANNOUNCEMENT SENT TO THE CALLING SUBSCRIBER?....

3. CHECK B: IS THE CIRCUIT IDLE?.....

4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note - It may not be possible to confirm that the appropriate tone is returned to the calling party. In the case it must be verified that the signalling point under test retransmis the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.4.2

REFERENCE : Q.724 § 1.7

TITLE : ADI

SUBTITLE : ADI sent

PURPOSE : To verify that signalling point A is able to generate an address incomplete signal

PRE-TEST CONDITIONS : SP A should be able to determine that the proper number of digits has not been received

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
	⟨----------	IAM
ADI	----------⟩	
	⟨----------	CLF
RLG	----------⟩	

TEST DESCRIPTION

1. Make a call from SP B to SP A, but do not enter the final digit.
   Record message sequence using a signal monitor.
2. CHECK A: WAS THE CORRECT TONE OR ANNOUCEMENT SENT TO THE CALLING SUBSCRIBER?....
3. CHECK B: IS THE CIRCUIT IDLE?...
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note - It may be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified tha the signalling point under test retransmis the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.5.1

REFERENCE : Q.724 § 6.3

TITLE : CFL

SUBTITLE : CFL received

PURPOSE : To verify that the call will be immediately released by the outgoing sigalling point if a call failure signal is received and the correct indication is given to the calling party

PRE-TEST CONDITIONS : Arrange the data in signalling point B such that a call failure signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	CFL
CFL	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUCEMENT RETURNED TO THE CALLING PARTY?.....
3. CHECK B: IS THE CALL IDLE?...
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - An address complete signal may be sent in the backward direction before a CFL signal is sent.

Note 2 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.5.2

REFERENCE : Q.724 § 6.3

TITLE : CFL

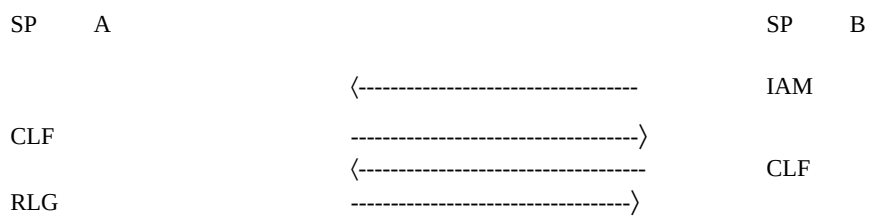
SUBTITLE : CFL sent

PURPOSE : To verify that the signalling point A is able to generate a call failure signal

PRE-TEST CONDITIONS : Arrange the data in SP A such that a call failure signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP B to SP A.
   Record the message sequence using a signal monitor.

2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?.....

3. CHECK B: IS THE CALL IDLE?.....

4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - An address complete signal may be sent in the backward direction before a CFL signal is sent.

Note 2 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.6.1

REFERENCE : Q.724 § 1.9

TITLE : SSB

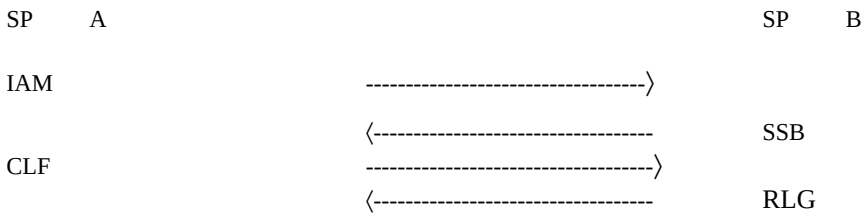
SUBTITLE : SSB Received

PURPOSE : To verify that the call will be immediately released by SP A if a Subscriber-busy signal is received and the correct indication is given to the calling party

PRE-TEST CONDITIONS : Called termination must be busy

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?.....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

Note 2 - This sequence may not be possible at International Gateways

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.6.2

REFERENCE : Q.724 § 1.9

TITLE : SSB

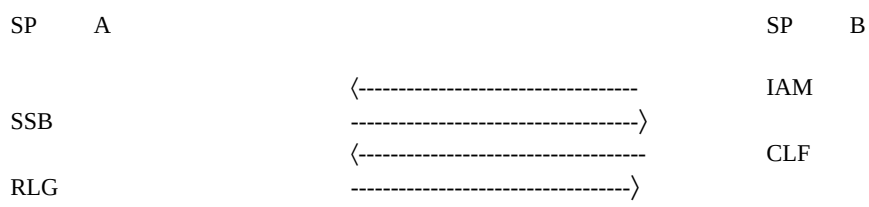
SUBTITLE : SSB Sent

PURPOSE : To verify that signalling point A is able to generate or retransmit a subscriber busy signal

PRE-TEST CONDITIONS : The called termination must be busy

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?.....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

Note 2 - This sequence may not be possible at International Gateways

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.7.1

REFERENCE : Q.724

TITLE : UNN

SUBTITLE : UNN Received

PURPOSE : To verify that the call will be immediately released by SP A if a Unallocated-number signal is received and the correct indication is given to the calling party

PRE-TEST CONDITIONS : Arrange the data in signalling point B such that a UNN Signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :

SP A		SP B
IAM	----------⟩	
	⟨----------	UNN
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?.....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

Note 2 - This sequence may not be possible at International Gateways

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.7.2

REFERENCE : Q.724

TITLE : UNN

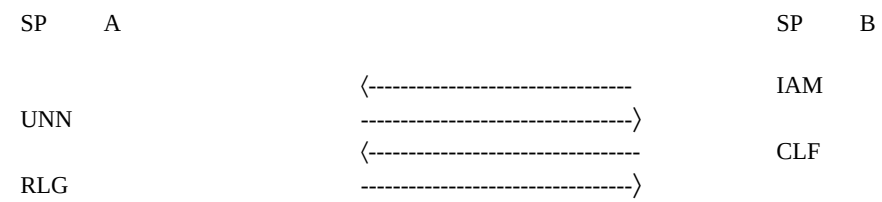
SUBTITLE : UNN Sent

PURPOSE : To verify that signalling point A is able to generate an Unallocated-number signal

PRE-TEST CONDITIONS : Arrange the data in signalling point A such that a UNN Signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP B to SP A.
Record the message sequence using a signal monitor.

2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?.....

3. CHECK B: IS THE CIRCUIT IDLE?.....

4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

Note 2 - This sequence may not be possible at International Gateways

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.8.1

REFERENCE : Q.724

TITLE : LOS

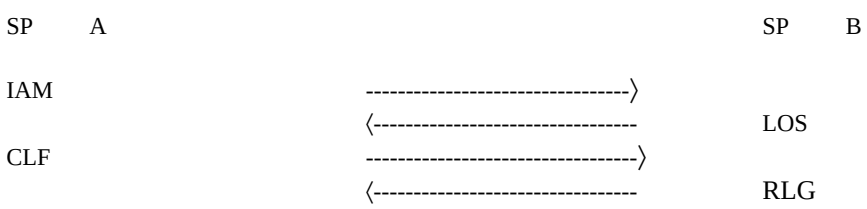
SUBTILE : LOS Received

PURPOSE : Verify that the call will be immediately released by SP A if a Line out of service signal is received and the correct indication is given to the calling party

PRE-TEST CONDITIONS : Arrange the data in signalling point B such that a LOS Signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B.
Record the message sequence using a signal monitor.

2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?.....

3. CHECK B: IS THE CIRCUIT IDLE?.....

4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER : 4.8.2

REFERENCE : Q.724

TITLE : LOS

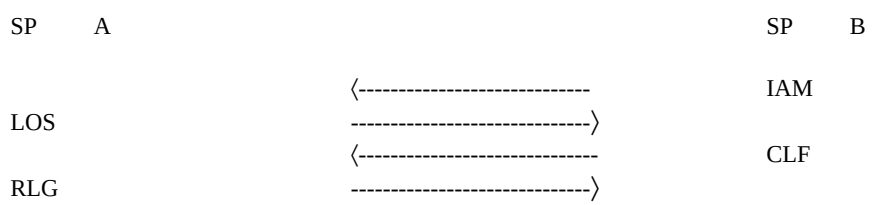
SUBTITLE : LOS Sent

PURPOSE : To verify that signalling point A is able to retransmit a Line-out-of-service signal

PRE-TEST CONDITIONS :Arrange the data in signalling point A such that a LOS Signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE :



TEST DESCRIPTION

1. Attempt to make a call from SP B to SP A.
Record the message sequence using a signal monitor.

2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?.....

3. CHECK B: IS THE CIRCUIT IDLE?.....

4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

Note 2 - This sequence may not be possible at International Gateways

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 4.9.1

REFERENCE: Q.724

TITLE: SST

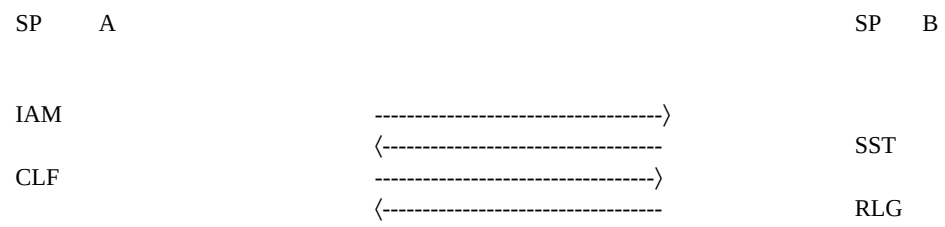
SUBTITLE: SST received

PURPOSE: To verify that a call will be immediately released by the outgoing signalling point if a send-special-information-tone signal is received and the correct indication is given to the calling party

PRE-TEST CONDITIONS: Arrange the data in signalling point B such that a SST signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B
   Record the message sequence with a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE RETURNED TO THE CALLING PARTY?.....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 4.9.2

REFERENCE: Q.724

TITLE: SST

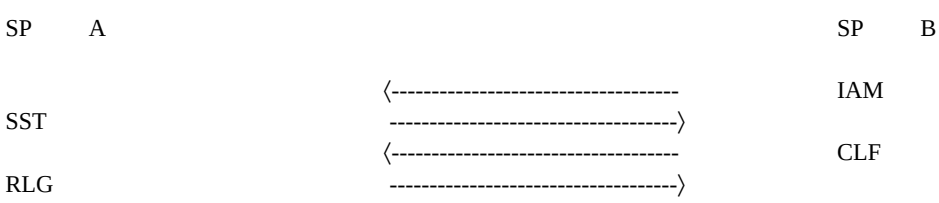
SUBTITLE: SST sent

PURPOSE: To verify that signalling point A is able to generate a send-special-information-tone signal

PRE-TEST CONDITIONS: Arrange the data in signalling point A such that a SST signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Attempt to make a call from SP B to SP A
   Record the message sequence with a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE RETURNED TO THE CALLING PARTY?.....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

   Note - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 4.10.1

REFERENCE: Q.724 § 10.2

TITLE: ACB

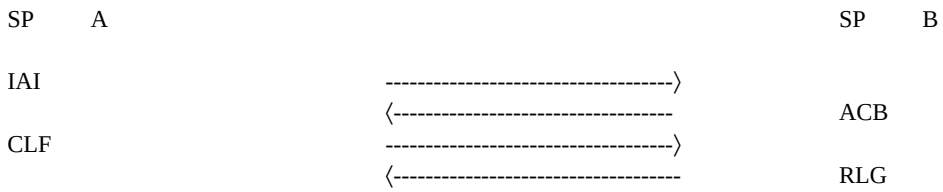
SUBTITLE: ACB received

PURPOSE: To verify that because of incompatible CUG information the call is rejected and an access barred signal is returned to the call request

PRE-TEST CONDITIONS: Arrange the signalling point data such that the CUG information contained in the IAI is compatible with the information stored at SP B

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Make a CUG call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

   Note - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 4.10.2

REFERENCE: Q.724 § 10.2

TITLE: ACB

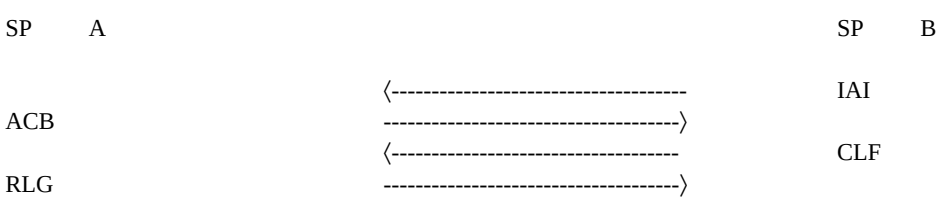
SUBTITLE: ACB sent

PURPOSE: To verify that SP A is able to generate or receive an access barred signal

PRE-TEST CONDITIONS:

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Make a CUG call from SP B to SP A.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE APPROPRIATE TONE OR ANNOUNCEMENT RETURNED TO THE CALLING PARTY?....
3. CHECK B: IS THE CIRCUIT IDLE?.....
4. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

   Note - It may not be possible to confirm that the appropriate tone is returned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 4.11.1

REFERENCE: Q.724 § 10.7

TITLE: DPN

SUBTITLE: DPN received

PURPOSE: To verify that the call will be immediately released by the SP A if a digital path not provided signal is received and the correct indicator is given to the calling party

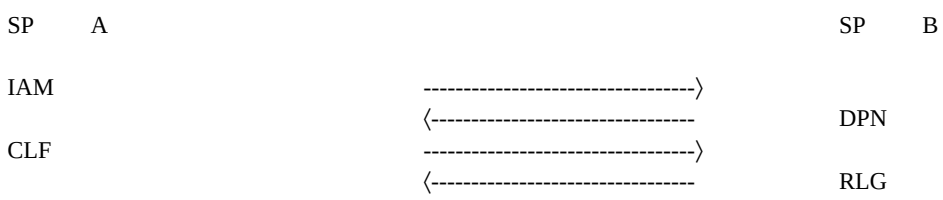
PRE-TEST CONDITIONS:

a) Ensure the IAM is set to indicate that an all digital path is required.

b) Ensure the data in signalling point B is configured such that a digital path not provided signal is returned to the call request.

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B.
   Ensuring that the IAM is set to indicate that an all digital path is required. Record the message sequence using a signal monitor.
2. CHECK A: IS THE CIRCUIT IDLE?.....
3. CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

   Note - It may not be possible to confirm that the appropriate tone is retuned to the calling party. In this case it must be verified that the signalling point under tes retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 4.11.2

REFERENCE: Q.724 § 10.7

TITLE: DPN

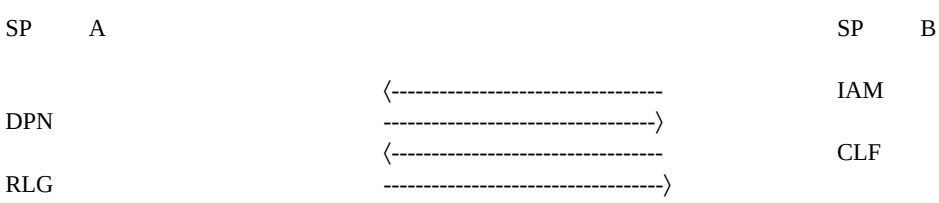
SUBTITLE: DPN sent

PURPOSE: To verify that signalling point A is able to generate a digital path not provided signal

PRE-TEST CONDITIONS: Arrange the data in signalling point A such that a DPN signal is returned to the call request

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Attempt to make a call from SP B to SP A.
   Record the message sequence with a signal monitor.

2. CHECK B: IS THE CIRCUIT IDLE?.....

3. CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

   Note - It may not be possible to confirm that the appropriate tone is retuned to the calling party. In this case it must be verified that the signalling point under test retransmits the signal received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.1

REFERENCE: Q.724 § 6.2.1

TITLE: Inability to release in response to a CLF

SUBTITLE:

PURPOSE: To verify that if the signalling point is unable to return a circuit to the idle condition in response to a clear forward signal, the circuit will be blocked

PRE-TEST CONDITIONS: Arrange the data in signalling point A such that it is unable to return the circuit to the idle condition in response to a clear forward signal

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

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Make a call from SP A to SP B. Record the message sequence using a signal monitor.
2.	CHECK A: IS RINGING TONE HEARD?.....
3.	The called party should answer the call
4.	CHECK B: IS SPEECH POSSIBLE?.....
5.	The calling party should release the call.
6.	CHECK C: VERIFY THAT A CALL CAN NOT BE ORIGINATED FROM EITHER SP
7.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?.....
8.	Repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.2

REFERENCE: Q.724 § 6.2.2

TITLE: Inability to release in response to a backward signal

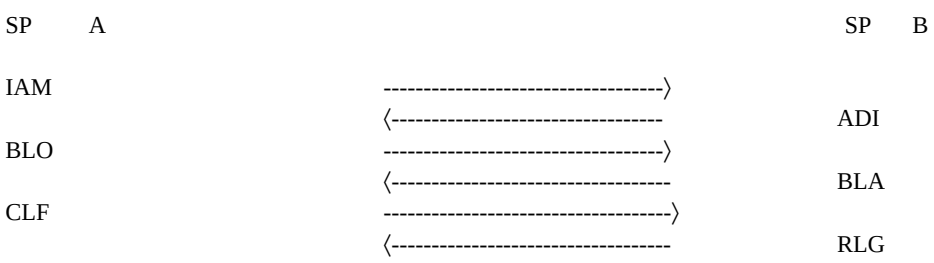
SUBTITLE :

PURPOSE : To verify that if signalling point is unable to return the circuit to an idle condition in response to a backward signal, the circuit will be blocked

PRE-TEST CONDITIONS: Arrange the data in signalling point A such that it is unable to return the circuit to an idle condition in response to a backward signal

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Make a call from SP A to SP B, but do not enter the final digit.
2. CHECK A: VERIFY THAT A CALL CAN NOT BE ORIGINATED FROM EITHER EXCHANGE
3. CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?.....
4. Repeat this test the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.3.1

REFERENCE: Q.724 § 6.4.3a

TITLE: Timers

SUBTITLE: T2

PURPOSE: To check the value of timer T2

PRE-TEST CONDITIONS: Arrange the data in signalling point B such that an address commplete message is not returned to the call request

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

EXPECTED MESSAGE SEQUENCE:

TEST DESCRIPTION

1.	Attempt to make a call from SP A to SP B. Record the message sequence with a signal monitor.
2.	CHECK A: WAS THE CLEAR FORWARD SIGNAL SENT BEFORE 20-30 SECONDS?.....
3.	CHECK B: IS THE CIRCUIT IDLE?.....
4.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.3.2

REFERENCE: Q.724 § 6.4.3b

TITLE: Timers

SUBTITLE: T3

PURPOSE: To check the value of timer T3

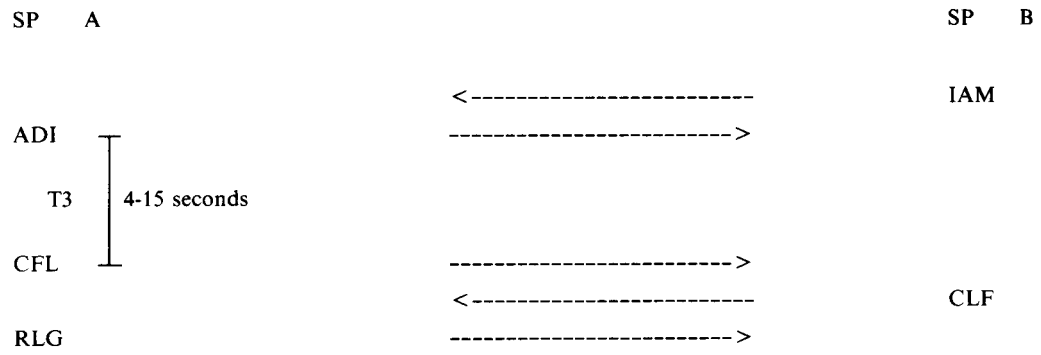
PRE-TEST CONDITIONS:

a) Signalling point A should be able to determine that the proper number of digits have not been received.

b) Arrange the data in signalling point B such that a clear forward signal is not returned in response to an address incomplete message.

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Attempt to make a call from SP B to SP A but do not dial the last digit. Record the message sequence using a signal monitor.
2.	CHECK A: WAS A CALL FAILURE SIGNAL SENT BETWEEN 4-15 SECONDS AFTER SENDING OF THE ADDRESS INCOMPLETE MESSAGE?...
3.	CHECK B: IS THE CIRCUIT IDLE?.....
4.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.3.3

REFERENCE: Q.724 § 6.4.3b

TITLE: Timers

SUBTITLE: T4

PURPOSE: To check the value of timer T4

PRE-TEST CONDITIONS:

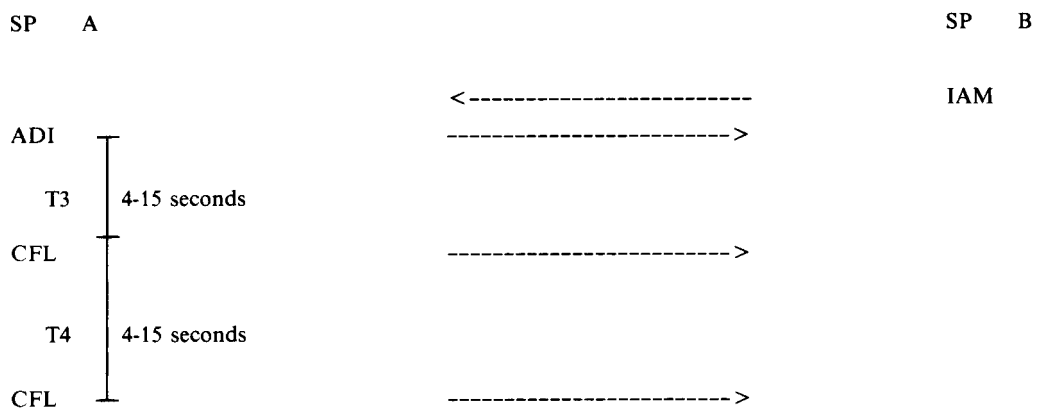
a) Signalling point A should be able to determine that the proper number of digits have not been received.

b) Arrange the data in signalling point B such that a clear forward signal is not returned in response to an address incomplete message.

c) Arrange the data in signalling point B such that a clear forward signal is not returned in response to a call failure signal.

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Attempt to make a call from SP B to SP A but do not send the last digit. Record the message sequence using a signal monitor.
2.	CHECK A: WAS THE CALL FAILURE SIGNAL REPEATED BETWEEN 4-15 SECONDS AFTER SENDING THE INITIAL CALL FAILURE SIGNAL?....
3.	CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.3.4

REFERENCE: Q.724 § 6.4.3b

TITLE: Timers

SUBTITLE: T5

PURPOSE: To check the value of timer T5

PRE-TEST CONDITIONS:

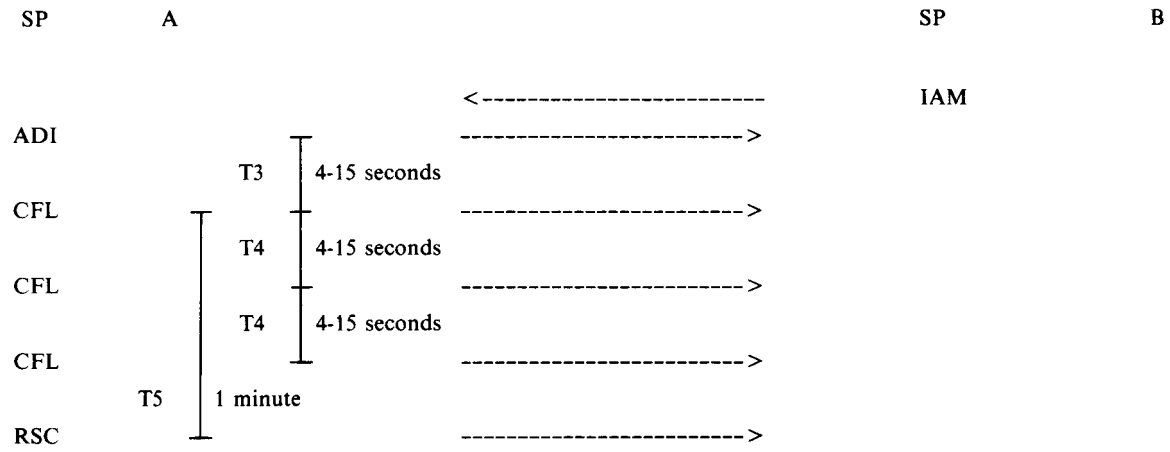
a) Signalling point A should be able to determine that the proper number of digits have not been received.

b) Arrange the data in signalling point B such that a clear forward signal is not returned in response to an address incomplete message.

c) Arrange the data in signalling point B such that a clear forward signal is not returned in response to a call failure signal.

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.		Attempt to make a call from SP B to SP A but do not sent the last digit. Record the message sequence using a signal monitor.
2.	CHECK A: THE	WAS THE CALL FAILURE SIGNAL REPEATED BETWEEN 4-15 SECONDS AFTER SENDING INITIAL CALL FAILURE SIGNAL?.....
3.	CHECK B:	WAS THE CALL FAILURE SIGNAL REPEATED FOR A PERIOD OF ONE MINUTE?.....
4.	CHECK C:	WAS A RESET CIRCUIT SIGNAL SENT ON THE EXPIRY OF TIMER T5?.....
5.	CHECK D:	WAS THE MESSAGE SEQUENCE AS ABOVE?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.3.5

REFERENCE: Q.724 § 6.23

TITLE: Timers

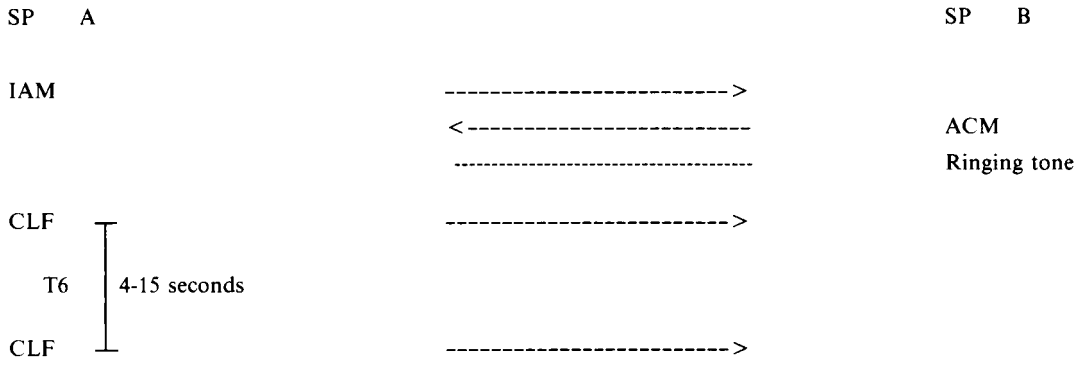
SUBTITLE: T6

Purpose: To check the value of timer T6

PRE-TEST CONDITIONS: Arrange the data in signalling point B such that a release guard is not returned in response to a clear forward signal

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Make a call from SP A to SP B, record the message sequence using a signal monitor.
2.	CHECK A : IS RINGING TONE HEARD?.....
3.	The calling party should clear the call.
4.	CHECK B: WAS THE CLEAR FORWARD SIGNAL REPEATED BEFORE 4-15 SECONDS AFTER SENDING THE INITIAL CLEAR FORWARD SIGNAL?.....
5.	CHECK C: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.3.6

REFERENCE: Q.118

TITLE: Q.118 timers

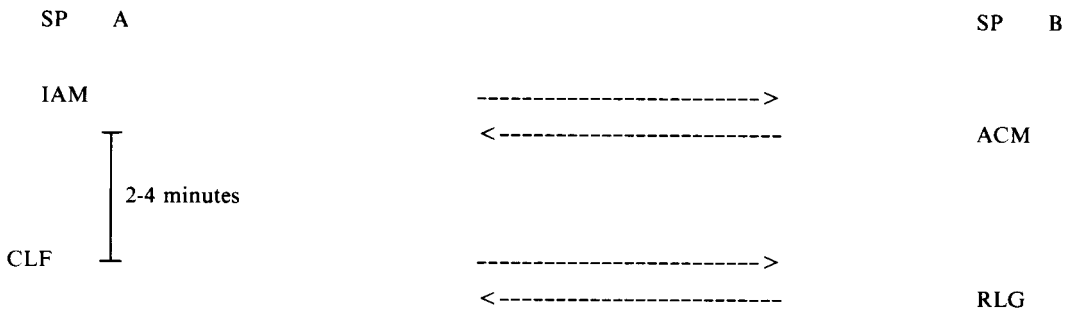
SUBTITLE: Answer signal not received

PURPOSE: To verify that if an answer signal is not received within 2-4 minutes after receiving an address complete signal the connection is releaded by the outgoing signalling point

PRE-TEST CONDITIONS: The called party should not answer the call

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Attempt to make a call from SP A to SP B. Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?.....
3. The called party should NOT answer the call.
4. CHECK B: WAS THE CLEAR FORWARD SEND WITHIN A PERIOD OF 2 To 4 MINUTES SIGNAL?.....
5. CHECK C: IS THE CIRCUIT IDLE?.....
6. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note - The timer need only be run at the going international exchange.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.3.7

REFERENCE: Q.118

TITLE: Q.118 timers

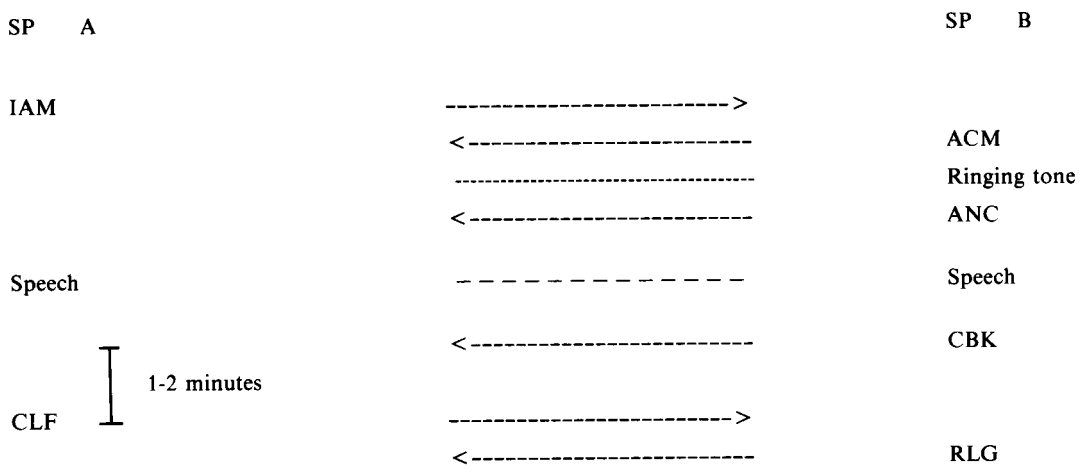
SUBTITLE: Delay in clearing by calling party

PURPOSE: Verify that the call will be released if the calling party has not cleared the call within 1-2 minutes after the called party clears

PRE-TEST CONDITIONS: The called party should not answer the call

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Make a call from SP A to SP B. Record the message sequence using a signal monitor.
2.	CHECK A: IS RINGING TONE HEARD?.....
3.	The called party should answer the call.
4.	CHECK B: IS SPEECH POSSIBLE?.....
5.	The called party should clear the call.
6.	CHECK C: WAS THE CLEAR FORWARD SENT WITHIN A PERIOD OF BETWEEN 1 AND 2 MINUTES?....
7.	CHECK D: IS THE CIRCUIT IDLE?.....
8.	CHECK E: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.4.1

REFERENCE: Q.724 § 1.15

TITLE: Reset of circuits during a call

SUBTITLE: Of an outgoing circuit

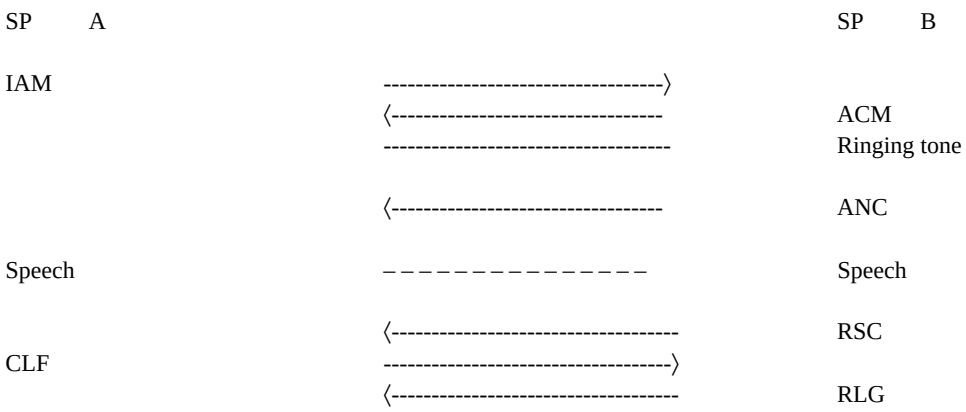
PURPOSE: To verify that on receipt of a reset circuit signal the call is immediately released

PRE-TEST CONDITIONS:

a) Called termination is free

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Make a call for SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?.....
5. Arrange for SP B to send a reset-circuit signal.
6. CHECK C: IS THE CIRCUIT IDLE?.....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.4.2

REFERENCE: Q.724 § 1.15

TITLE: Reset of circuit during call

SUBTITLE: Of an incoming circuit

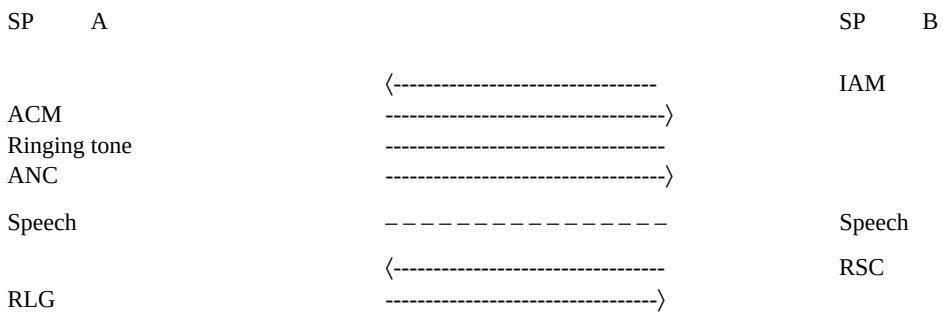
PURPOSE: To verify that the circuit reset procedure can be correctly initiated during a call

PRE-TEST CONDITIONS:

a) Called termination is free

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Make a call from SP B to SP A. Record the message sequence with a signal monitor.
2.	CHECK A: IS RINGING TONE HEARD?.....
3.	The called party should answer the call.
4.	CHECK B: IS SPEECH POSSIBLE?.....
5.	Arrange for SP B to send a reset circuit signal.
6.	CHECK C: IS THE CIRCUIT IDLE?....
7.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?....

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 5.5.1

REFERENCE: Q.724 § 6.5

TITLE: Receipt of unreasonable information during a call

SUBTITLE: Received

PURPOSE: To verify that the action taken by a signalling point upon receipt of unreasonable signalling information is as stated in Q.724 Section 6.5

PRE-TEST CONDITIONS:
a) Circuit idle and unblocked

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

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
	⟨----------	See Item 3 below
	⟨----------	ANC
	– – – – – – – – – – – – – –	Speech
	⟨----------	See Item 6 below
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1.	Make a call from SP A to SP B. Record the message sequence using a signal monitor.
2.	CHECK A: IS RINGING TONE HEARD?.....
3.	Send a message which would be unreasonable at this point in the call (i.e COT) and confirm that message is discarded.
4.	The called party should answer the call.
5.	CHECK B: IS SPEECH POSSIBLE?....
6.	SP B should send such a message which would be unreasonable at this point in the call (i.e ACM) and confirm that the message is discarded.
7.	The calling point should clear the call.
8.	CHECK C: IS THE CIRCUIT IDLE?.....
9.	CHECK D: WAS THE MESSAGE AS SHOWN ABOVE.

Note - This test covers only some of the ambiguous messages which could be received.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.1.1

REFERENCE: Q.724 § 7.3

TITLE: Continuity check call

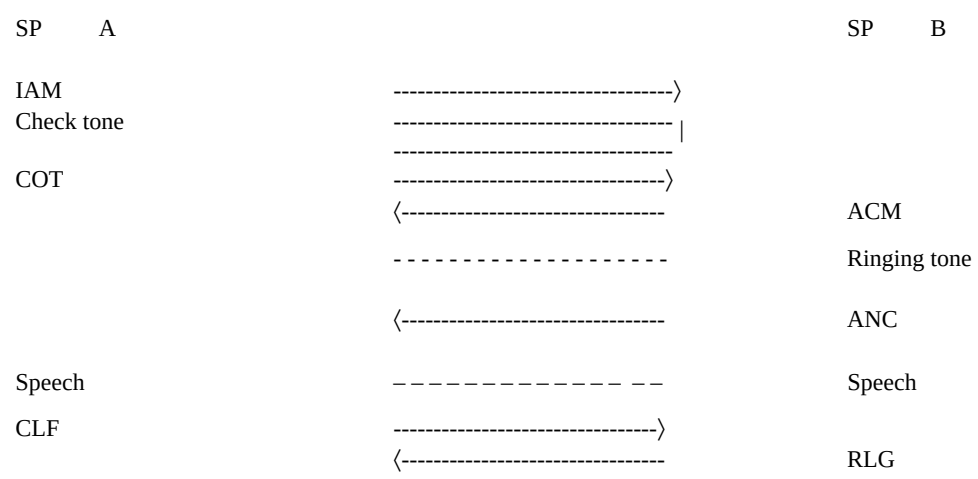
SUBTITLE: COT applied on an outgoing circuit

PURPOSE: To verify that a call can be set up on a circuit requiring a continuity check

PRE-TEST CONDITIONS: Arrange the data in signalling point A such that a continuity check is required on this circuit

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Make a call from SP A to SP B Record the message sequence using a signal monitor.
2.	CHECK A: IS RINGING TONE HEARD?.....
3.	The called party should answer the call
4.	CHECK B: IS SPEECH POSSIBLE?.....
5.	The calling party should clear the call.
6.	CHECK C: IS THE CIRCUIT IDLE?....
7.	CHECK D: WAS THE MESSAGE SEQUENCE AS SHOWN ABOVE?....
8.	For validation testing repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.1.2

REFERENCE: Q.724 § 7.3

TITLE: Special call set up

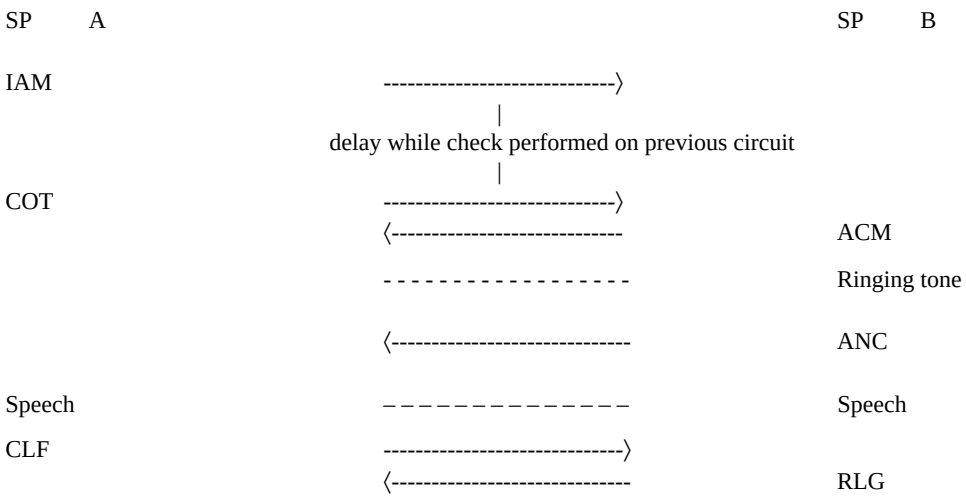
SUBTITLE: COT applied on a previous circuit

PURPOSE: To verify that a call can be set up if a continuity check is being performed on a previous circuit

PRE-TEST CONDITIONS: Arrange the data in signalling point A such that the signalling information indicates that a continuity check has been performed on a previous circuit

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?.....
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE?.....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?.....
8. CHECK E: WAS THE CONTINUITY CHECK INDICATOR SET TO A BINARY VALUE OF TWO (MESSAGE INDICATOR BITS E and F IN IAM)?.....
9. For validation testing repêat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.1.3

REFERENCE: Q.724 § 7.5

TITLE: Continuity check call

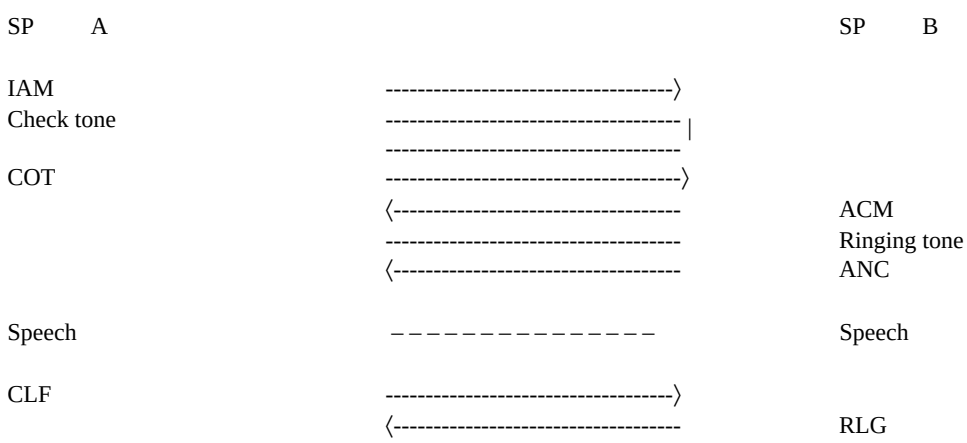
SUBTITLE: COT on a satelite circuit

PURPOSE: To verify that a continuity check can be performed on a satellite circuit

PRE-TEST CONDITIONS: Arrange the data in signalling point A such that the call is routed over a satellite circuit, with a continuity check applied for

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Make a call from SP A to SP B. Record the message sequence using a signal monitor.
2.	CHECK A: IS RINGING TONE HEARD?....
3.	The called party should answer the call.
4.	CHECK B: IS SPEECH POSSIBLE?.....
5.	The calling party should clear the call.
6.	CHECK C: IS THE CIRCUIT IDLE?.....
7.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?.....
8.	CHECK E: WAS THE SATELLITE INDICATOR BIT IN THE IAM SET TO 1?.....
9.	For validation testing repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.1.4

REFERENCE: Q.724 § 6.1

TITLE: Continuity check call

SUBTITLE: Calling party clears during COT

PURPOSE: To verify that the calling party can successfully clear during the continuity check phase of the call

PRE-TEST CONDITIONS: Arrange the data in signalling point B such that a continuity check is applied on this call

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

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
IAM	----------⟩	
Check tone	----------	
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Make a call from SP A to SP B.
   Record the message sequence using a signal monitor.
2. The calling party should clear the call during the continuity check phase.
3. CHECK A: IS THE CIRCUIT IDLE?.....
4. CHECK B: WAS THE MESSAGE SEQUENCE AS ABOVE?....
5. For validation testing repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.1.5

REFERENCE: Q.724 § 7.3

TITLE: Continuity check call

SUBTITLE: Delay of through connect

PURPOSE: To verify that the switching though of the speech path is delayed until the residual check-tone has propated through the return of the speech path

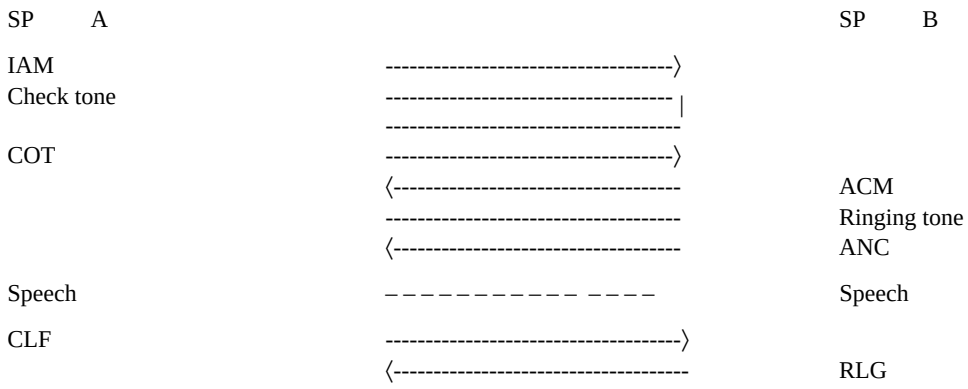
PRE-TEST CONDITIONS:

a) The called termination is free

b) Arrange the data in signalling point A such that a continuity check is applied on this call

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Make a call from SP A to SP B. Record the message sequence using a signal monitor.
2.	CHECK A: WAS THE CONTINUITY CHECK TONE HEARD BY EITHER CALLED OR CALLING PARTY?..
3.	CHECK B: IS RINGING TONE HEARD?.....
4.	The called party should answer the call.
5.	CHECK B: IS SPEECH POSSIBLE?...
6.	The calling party should clear the call.
7.	CHECK C: IS THE CIRCUIT IDLE?...
8.	CHECK D: WAS THE MESSAGE SEQUENCE AS SHOWN ABOVE?.....
9.	For validation testing repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.1.6

REFERENCE: Q.724 § 7.3

TITLE: Continuity check call

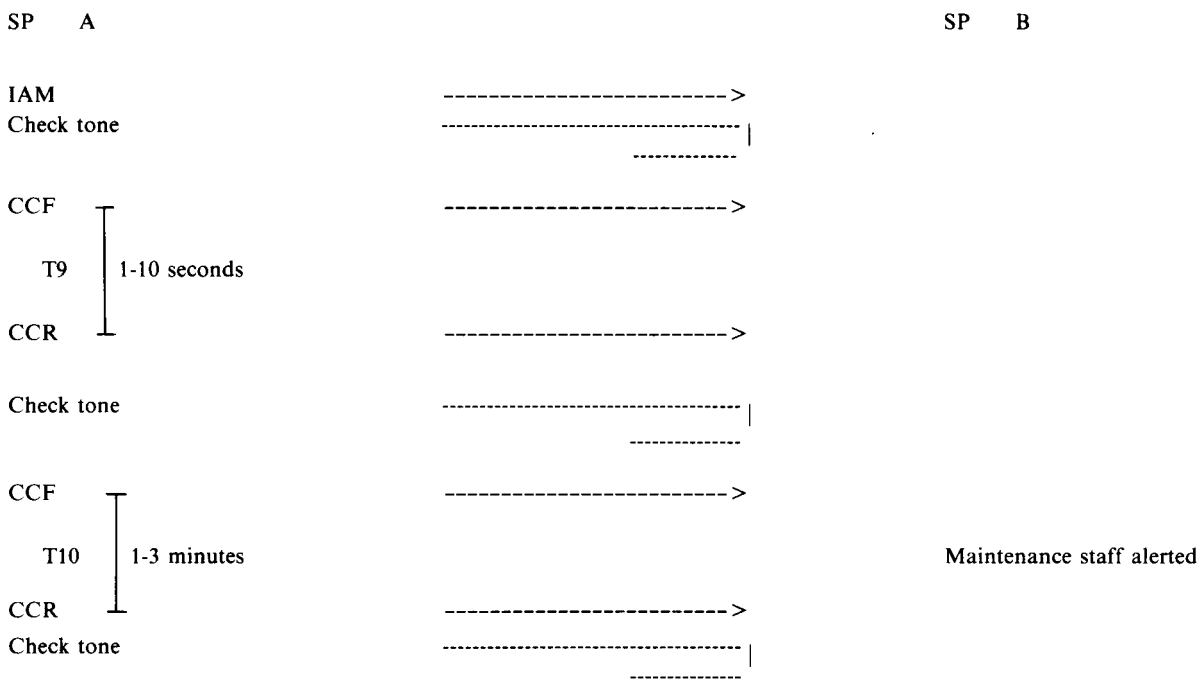
SUBTITLE: COT unsuccessful

PURPOSE: To verify that a repeat attempt of the continuity check is made on the failed circuit

PRE-TEST CONDITIONS: Ensure that no backward tone is detected within the specified timeout

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Initiate the continuity test call procedure at SP A.
   Record the message sequence using a signal monitor.
2. CHECK A: WAS THE SECOND CONTINUITY CHECK INITIATED WITHIN 1 TO 10 SECONDS?....
3. CHECK B: WERE THE MAINTENANCE STAFF ALERTED ON FAILURE OF THE SECOND CONTINUITY CHECK?....
4. CHECK C: WAS THE CHECK REPEATED AT INTERVALS OF 1 TO 3 MINUTES?.....
5. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?....

Note 1 - The repeated check will only finish when continuity is detected.

Note 2 - On failure of the COT an automatic repeat attempt will be made -see test No. 6.2.5

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.1.7

REFERENCE: Q.724 § 7.3

TITLE: Continuity check call

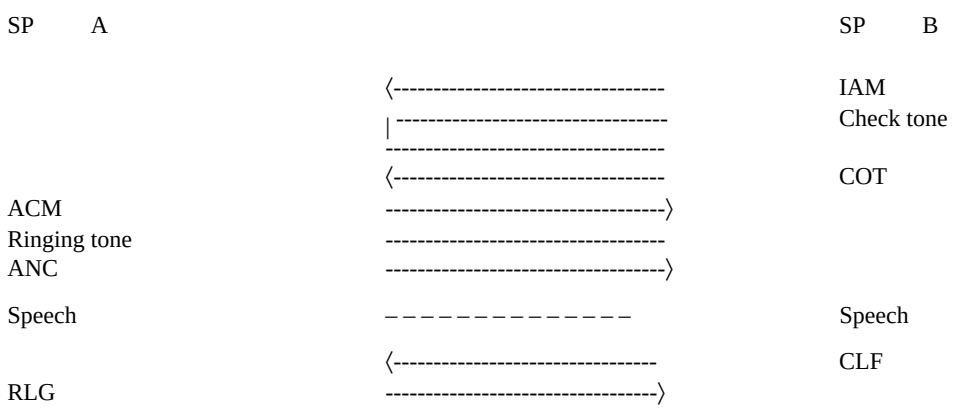
SUBTITLE: COT received on an incoming circuit

PURPOSE: To verify that a call can be set up on an incoming circuit requiring a continuity check

PRE-TEST CONDITIONS: Arrange the data in signalling point such that a continuity check is required on this circuit

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Make a call from SP B to SP A.
   Record the message sequence using a signal monitor.
2. CHECK A: IS THE RINGING TONE HEARD?....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?...
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE?...
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?....
8. For validation testing repeat this test in the reverse direction.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.2.1

REFERENCE: Q.724 § 3

TITLE: Automatic repeat attempt

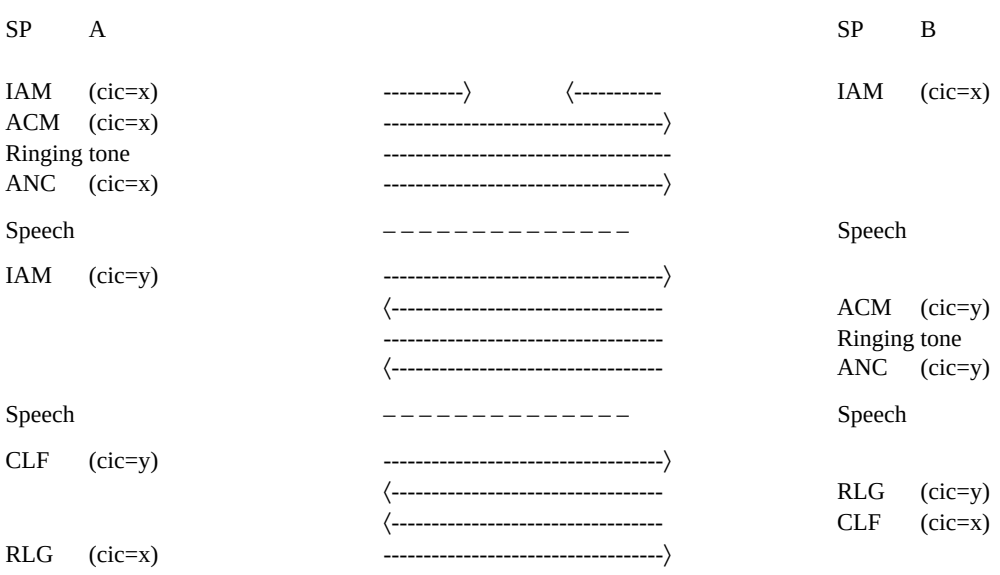
SUBTITLE: Dual seizure

PURPOSE: To verify that an automatic repeat attempt will be made on detection of a dual seizure

PRE-TEST CONDITIONS: Arrange the signalling point data such that SP B is the controlling exchange

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Simultaneously transmit an IAM (containing the same value of cic) from each end of the link for a both way circuit. Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD ON THE CALL ORIGINATED FROM SP B?....
3. The called party at SP A should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?....
5. CHECK C: WAS THE REPEAT ATTEMPT MADE BY SP A, WITH A DIFFERENT VALUE OF CIC IN THE IAM?.....
6. CHECK D: IS RINGING TONE HEARD ON THE CALL ORIGINATED FROM SP A?.....
7. The called party at SP B should answer the call.
8. CHECK E: IS SPEECH POSSIBLE?...
9. Clear both calls down.
10. CHECK F: ARE THE CIRCUITS IDLE?....
11. CHECK G: WAS THE MESSAGE SEQUENCE AS ABOVE?....

Note - The message sequence may not be as shown above.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.2.2

REFERENCE: Q.724 § 3

TITLE: Automatic repeat attempt

SUBTITLE: Circuit reset

PURPOSE: To verify that an automatic repeat attempt will be made on receipt of circuit reset after sending of an initial address message and before a backward signal has been received

PRE-TEST CONDITIONS:

a) Arrange the data in signalling point B such that a circuit reset signal is sent in response to the initial address mesage of the first call request

b) The called termination should be free

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

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
IAM	----------⟩	
	⟨----------	RSC
CLF	----------⟩	
	⟨----------	RLG
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
	⟨----------	ANC
Speech	– – – – – – – – – – – – –	Speech
CLR	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Make a call for SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?...
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE?....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?...

   Note - The message sequence may not be as shown above.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.2.3

REFERENCE: Q.724 § 3

TITLE: Automatic repeat attempt

SUBTITLE: Reception of unreasonable signalling information

PURPOSE: To verify that a repeat attempt will be made on receipt of unreasonable signalling information after sending the initial address message and before one of the backward signals has been received

PRE-TEST CONDITIONS:

a) Arrange the data in signalling point B such that unreasonable signalling information (see note below) is returned in response to the initial address message of the first call request

b) The called termination should be free

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

EXPECTED MESSAGE SEQUENCE:

SP A		SP B
IAM	----------⟩	
	⟨----------	see Note 1 below
RSC	----------⟩	
	⟨----------	RLG
IAM	----------⟩	
	⟨----------	ACM
	----------	Ringing tone
	⟨----------	ANC
Speech	– – – – – – – – – – – – – – –	Speech
CLF	----------⟩	
	⟨----------	RLG

TEST DESCRIPTION

1. Make a call for SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?....
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE?....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?.....

Note 1 - This may be any message that if received at this point would be either ambiguous or inappropriate

Note 2 - The message sequence may not be as shown above.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.2.4

REFERENCE: Q.724 § 3

TITLE: Automatic repeat attempt

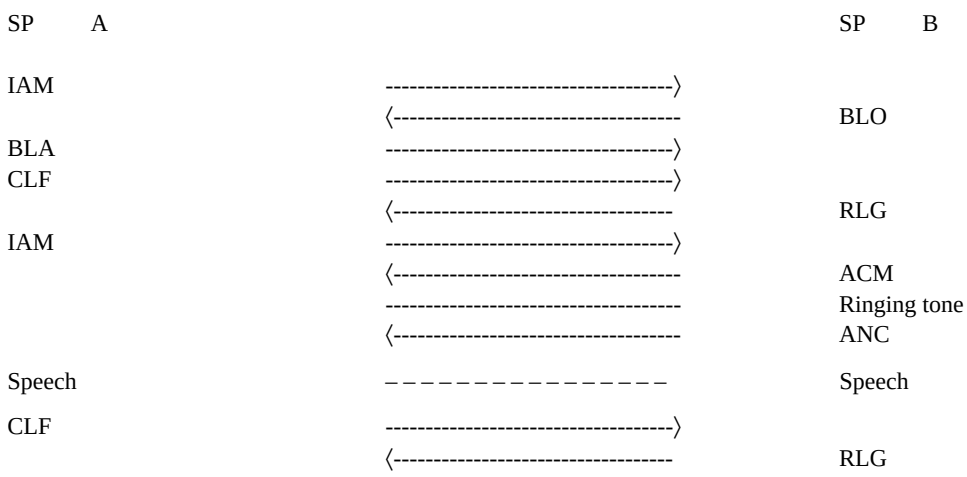
SUBTITLE: Blocking of a circuit

PURPOSE: To verify that an automatic repeat attempt will be made on receipt of the blocking signal after sending an initial address message and before any backward messages have been received

PRE-TEST CONDITIONS: Arrange the data in signalling point B such that a blocking signal is returned in response to the initial address message of the first call request

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Make a call for SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?....
3. The called party should answer the call.
4. CHECK B: IS SPEECH POSSIBLE?....
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE?....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?....

   Note - The message sequence may not be as shown above.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.2.5

REFERENCE: Q.724 § 6

TITLE: Automatic repeat attempt

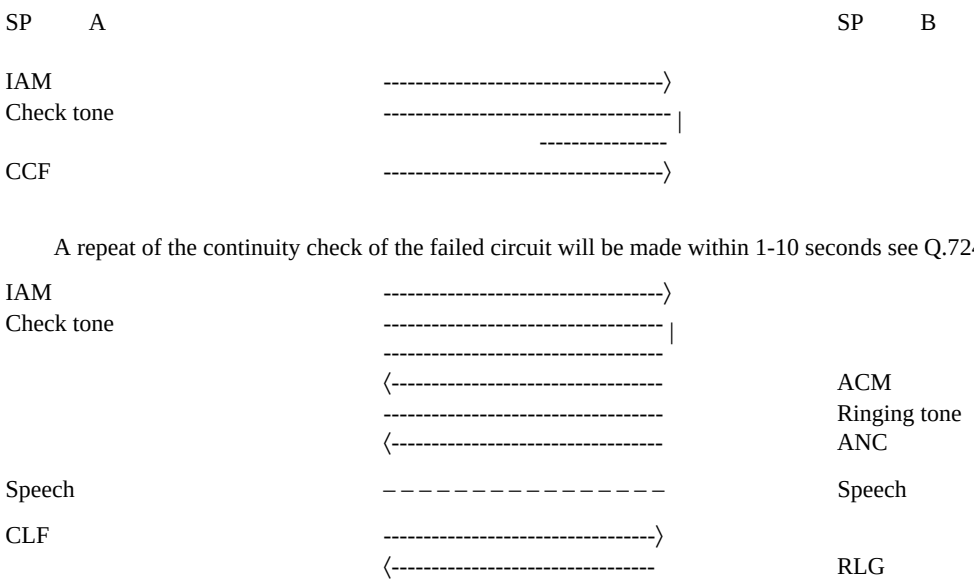
SUBTITLE: Continuity check failure

PURPOSE: To verify that an automatic repeat attempt will be made if on continuity check failure

PRE-TEST CONDITIONS: Arrange the data in signalling point B such that check tone is not returned within the specified limits to the first call request

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1. Make a call for SP A to SP B.
   Record the message sequence using a signal monitor.
2. CHECK A: IS RINGING TONE HEARD?.....
3. The called party should clear the call?....
4. CHECK B: IS SPEECH POSSIBLE
5. The calling party should clear the call.
6. CHECK C: IS THE CIRCUIT IDLE?....
7. CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?...

   Note - The message sequence may not be as shown above.

TUP LEVEL 4 TEST SPECIFICATION

TEST NUMBER: 6.3.1

REFERENCE: Q.724 § 2.5

TITLE: Dual seizure

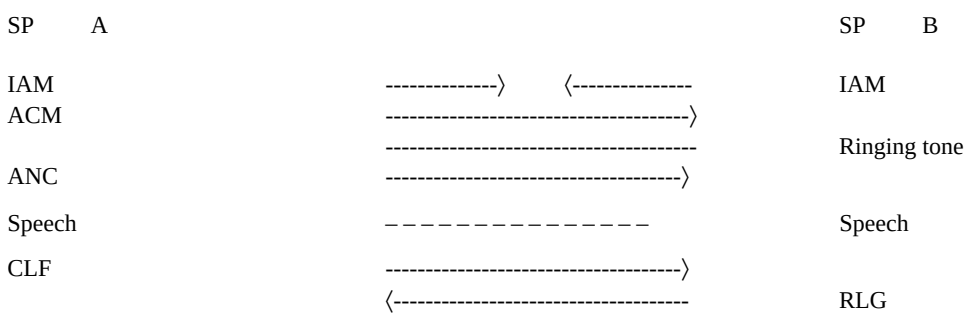
SUBTITLE: Dual seizure for controlling side

PURPOSE: To verify that on detection of dual seizure, the call initiated by the controlling signalling point is completed

PRE-TEST CONDITIONS: Arrange the signalling point data such that SP B is the controlling signalling point

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

EXPECTED MESSAGE SEQUENCE:



TEST DESCRIPTION

1.	Simultaneously transmit an IAM (containing the same value of cic) from each end of the link for a both way sircuit. Record the message sequence using a signal monitor.
2.	CHECK A: IS RINGING TONE HEARD ON THE CALL ORIGINATED FROM SP B?....
3.	The called party at SP A should answer the call.
4.	CHECK B: IS SPEECH POSSIBLE?...
5.	The calling party at SP B should clear the call.
6.	CHECK C: IS THE CIRCUIT IDLE?.....
7.	CHECK D: WAS THE MESSAGE SEQUENCE AS ABOVE?....
8.	CHECK E: WAS A REPEAT ATTEMPT MADE BY SP A ON ANOTHER CIRCUIT?....
9.	Repeat this test in the reverse direction.