MTP LEVEL 3

TEST NUMBER: 4.3

PAGE: 1 of 1

REFERENCE:
Q.704 § 6, Fig. 28, Fig. 29, Fig. 31

TITLE: Changeback

SUB TITLE: Additional CBD

PURPOSE: To check the action of the system on reception of an additional CBD

PRE–TEST CONDITIONS:
Linkset with all links available

CONFIGURATION:
A

TYPE OF TEST:
VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP A

SP

B

Link

Link

:Start traffic

ALL TRAFFIC

---------->

<----------

ALL
TRAFFIC

<----------

1 – X
CBD, SLC 1 – X

1 – X CBA, SLC 1 – X

---------->

ALL TRAFFIC

---------->

<----------

ALL
TRAFFIC

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.

Send an unexpected CBD to A and check that a CBA is send back in response without impact on the traffic.

3.

Stop traffic and check that it has been received correctly.

MTP LEVEL 3

TEST NUMBER:
4.4

PAGE:1 of 1

REFERENCE: Q.704 § 6, Fig. 28, Fig. 29, Fig. 31

TITLE: Changeback

SUB TITLE: No acknowledgement to first CBD

PURPOSE: To check that a second CBD is sent if the first is not acknowledged

PRE–TEST CONDITIONS:
Linkset with one available link

CONFIGURATION:
A

TYPE OF TEST: VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP

B

Link

Link

:Start trafficx

1 – 2 TRAFFIC

---------->

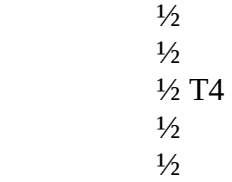
<----------

1 – 2 TRAFFIC

1 – 1 :Activate

1 – 2 CBD, SLC 1 – 1

---------->



1 – 2 CBD, SLC 1 – 1

---------->

<----------

1 – X CBA, SLC 1 – 1

1 – 1 TRAFFIC (from 1 – 2)

---------->

<----------

1 – 1 TRAFFIC (from 1 – 2, see note)

1 – 2 TRAFFIC

---------->

<----------

1 – 2 TRAFFIC

:Wait

:Stop traffic

Note – B may perform a changeback or not.

TEST DESCRIPTION

1.

Start traffic to B and C on link 1 – 2.

2.

Activate link 1 – 1 and check that a CBD is received (no CBA in response).

3.

Check that after T4 a second CBD is received and CBA is sent in response before T5 expires.

4.

Check that the traffic is changed back on link 1 – 1.

5.

Stop traffic and check that there were no lost messages, no duplication and no missequencing.

6.

Check that the duration of T4 is inside the specified range.

MTP LEVEL 3

TEST NUMBER:
4.5

PAGE:

1 of 1

REFERENCE: Q.704 § 6, Fig. 28, Fig. 29, Fig. 31

TITLE: Changeback

SUB TITLE: No acknowledgement of repeat changeback declaration

PURPOSE: To check that traffic is changed back after a repeat changeback declaration is not acknowledged

PRE–TEST CONDITIONS:
Linkset with one available link

CONFIGURATION:
A

TYPE OF TEST: VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP

B

Link

Link

:Start traffic

1 – 2 TRAFFIC

---------->

<----------

1 – 2 TRAFFIC

1 – 1 :Activate

1 – 2 CBD, SLC 1 – 1

---------->

½
½ T4
½

1 – 2 CBD, SLC 1 – 1

---------->

1 – 1 TRAFFIC (from 1 – 2)

---------->

<----------

1 – 1

TRAFFIC (from 1 – 2,

see note)

1 – 2 TRAFFIC

---------->

<----------

1 – 2

TRAFFIC

:Wait

:Stop traffic

Note – B may perform a changeback or not.

TEST DESCRIPTION

1.

Start traffic to B and C on link 1 – 2.

2.

Check that a CBD is received and not acknowledged.

3.

Check that after T4, a CBD is repeated and not acknowledged by a CBA.

4.

Check that after T5, the traffic is changed back on link 1 – 1.

5.

Stop traffic and check that there were no lost messages, no duplication and no missequencing.

6.

Check that an indication was given by the system (§ 6.2.3, Q. 704).

7.

Check that the duration of T5 is inside the specified range.

MTP LEVEL 3

TEST NUMBER:
4.6

PAGE:1 of 1

REFERENCE: Q.704 § 6, Fig. 28, Fig. 29, Fig. 31

TITLE: Changeback

SUB TITLE: Simultaneous changeback

PURPOSE: To check simultaneous changebacks of traffic onto two links

PRE–TEST CONDITIONS:
Linkset with one available link (end of test 3.14)

CONFIGURATION:
A

TYPE OF TEST: VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP

B

Link

Link

:Start traffic

1 – 3 TRAFFIC

---------->

<----------

1 – 3 TRAFFIC

1 – 1 :Activate (depending of the deactivation mean

1 – 2 :Activate previously used)

1 – 3 CBD, SLC 1 – 1

---------->

1 – 3 CBD, SLC 1 – 2

---------->

<----------

1 – X CBA, SLC 1 – 1

<----------

1 – X CBA, SLC 1 – 2

1 – 1 TRAFFIC (from 1 – 3)

---------->

<----------

1 – 1 TRAFFIC (from 1 – 3, see note)

1 – 2 TRAFFIC (from 1 – 3)

---------->

<----------

1 – 2 TRAFFIC (from 1 – 3, see note)

1 – 3 TRAFFIC

---------->

<----------

1 – 3 TRAFFIC

:Wait

:Stop traffic

Note 1 – B may perform changebacks or not.

Note 2 – Changeback procedures may be performed in sequence. The traffic sequence presented here, after the changebacks, is the final situation.

TEST DESCRIPTION

1.

Start traffic to B and C on link 1 – 3.

2.

Simultaneously activate links 1 – 1 and 1 – 2.

3.

Check that CBDs are received and CBAs are sent (within T4) for 1 – 1 and 1 – 2 and that the traffic is changed back on links 1 – 1 and 1 – 2.

4.

Stop traffic and check that there were no lost messages, no duplication and no missequencing.

MTP LEVEL 3

TEST NUMBER:
4.7

PAGE: 1 of 1

REFERENCE: Q.704 § 6, Fig. 28, Fig. 29, Fig. 31

TITLE: Changeback

SUB TITLE: Changeback from several alternative links within a linkset

PURPOSE: To check the changeback procedure when it is performed to several links in a same linkset

PRE–TEST CONDITIONS:

Linkset with one unavailable link (end of test 3.15)

CONFIGURATION: A

TYPE OF TEST: VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP

B

Link

Link

:Start traffic

1 – 2, 3, 4 TRAFFIC

---------->

<----------

1 – 2, 3, 4TRAFFIC

1 – 1
:Activate (depending of the deactivation mean previously used)

1 – 2
CBD, SLC 1 – 1

---------->

1 – 3
CBD, SLC 1 – 1

---------->

1 – 4
CBD, SLC 1 – 1

---------->

<----------

1 – X CBA, SLC 1 – 1

<----------

1 – X CBA, SLC 1 – 1

<----------

1 – X CBA, SLC 1 – 1

1 – 1
TRAFFIC
(from 1 – 2, 3, 4)

---------->

<----------

1 – 1 TRAFFIC (from 1 – 2, 3, 4, see note)

1 – 2, 3, 4
TRAFFIC

---------->

<----------

1 – 2, 3, 4TRAFFIC

:Wait

:Stop traffic

Note – B may perform changebacks or not.

TEST DESCRIPTION

1.

Start traffic to B and C on links 1 – 2, 1 – 3 and 1 – 4.

2.

Activate link 1 – 1 and check that a CBD is sent on links 1 – 2, 1 – 3 and 1 – 4. Check that each

CBD contains a different changeback code.

3.

Check that the traffic is changed back on link 1 – 1.

4.

Stop traffic and check that there were no lost messages, no duplication and no missequencing.

MTP LEVEL 3

TEST NUMBER:
4.8

PAGE: 1 of 1

REFERENCE: Q.704 § 6, Fig. 28, Fig. 29, Fig. 31

TITLE: Changeback

SUB TITLE:

Changeback from another linkset

PURPOSE: To check the changeback procedure when it is performed from another linkset

PRE–TEST CONDITIONS:

Linksets 1 and 3 unavailable (end of test 3.16)

CONFIGURATION: B

TYPE OF TEST: VAT, CPT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP

B

SP
C

P
.

Link

Link

Link
Link

:Start traffic

2 – 1, 2 TRAFFIC
---------->
5 – 1
---------->

SP

D

6 – 1
---------->

SP

E

<----------

2 – 1, 2

<----------

5 – 1

SP

D

<----------

2 – 1, 2

<----------

6 – 1

SP

E

3 – 2 :Activate (depending of the deactivation mean previously used)

2 – 1 CBD, SLC 3 – 2

---------->

4 – 1

---------->

2 – 2 CBD, SLC 3 – 2

---------->

4 – 1

---------->

<---------- 3 – 2 CBA, SLC 3 – 2

<---------- 3 – 2 CBA, SLC 3 – 2

CHANGEBACK

2 – 1, 2 TRAFFIC

---------->

5 – 1

---------->

SP D

6 – 1
---------->
SP E

<----------
2 – 1, 2
<---------- 5 – 1 SP
D

3 – 2 TRAFFIC
(from 2 – X)
----------> 8 – 1 ----->
SP D

7 – 1 ------->
SP E

:Wait

:Stop traffic

Note – After activation of link 3 – 2, CBDs are sent from C to A via B and acknowledged by A. These messages are not presented to simplify the test description.

TEST DESCRIPTION

1.

Start traffic to E (and D in VAT).

2.

Activate link 3 – 2 and check that CBDs are received and that CBAs are sent before T4 expires in A.

3.

Check that the traffic is changed back on linkset 3 in accordance with the load sharing rules in A.

4.

Stop traffic and check that there were no lost messages, no duplication and no missequencing.

MTP LEVEL 3

TEST NUMBER:
4.9

PAGE: 1 of 1

REFERENCE:

Q.704 § 6, Fig. 28, Fig. 29, Fig. 31

TITLE: Changeback

SUB TITLE:
Changeback from two linksets

PURPOSE: To check the changeback procedure when it is performed from two linksets

PRE–TEST CONDITIONS:
Linkset 1 unavailable (end of test 3.18)

CONFIGURATION:
B

TYPE OF TEST:
VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP

B

SP

C

SP

D

Link

Link

Link Link

:Start traffic

2 – 1 TRAFFIC ---------->

5 – 1
---------->

<----------
2 – 1
<---------- 5 – 1
TRAFFIC

2 – 2 TRAFFIC ---------->
5 – 1
---------->

< ----------
2 – 2
< ---------- 5 – 1

3 – 1 TRAFFIC ---------->
8 – 1 --------->

3 – 2 TRAFFIC ---------->
8 – 1 --------->

1 – 2 :Activate (depending of the deactivation mean previously used)

2 – 1 CBD, SLC 1 – 2 ---------->
5 – 1
---------->

2 – 2 CBD, SLC 1 – 2 ---------->
5 – 1
---------->

3 – 1 CBD, SLC 1 – 2
---------->
8 – 1 ---------->

3 – 2 CBD, SLC 1 – 2 ---------->
8 – 1 ---------->

CBAs

<----------
2 – X
<----------------------------- 5 – 1
SLC 1 – 2

<----------
2 – X
<----------------------------- 5 – 1
SLC 1 – 2

<----------
2 – X
<----------------------------- 5 – 1
SLC 1 – 2

<----------
2 – X
<----------------------------- 5 – 1
SLC 1 – 2

1 – 2 TRAFFIC
(from linksets 2 and 3)
--->

<--
1 – 2 TRAFFIC
(from

linksets 5,
see note)

2 – 1, 2 TRAFFIC----------->
5 – 1
---------------------------------->

3 – 1, 2 TRAFFIC
---------------------------------->
8 – 1 --------->

:Wait

:Stop traffic

Note – D may perform changebacks or not.

TEST DESCRIPTION

1.

Start traffic on linksets 2 and 3 to D.

2.

Activate the link 1 – 2 and check that CBDs are received and that CBAs are sent before T4 expires in A. Check that each CBD has a different changeback code.

3.

Check that the traffic is changed back to link 1 – 2 in accordance with the load sharing rules in A.

4.

Stop traffic and check that there were no lost messages, no duplication and no missequencing.

MTP LEVEL 3

TEST NUMBER:
4.10

PAGE:1 of 1

REFERENCE: Q.704 § 6, Fig. 28, Fig. 29, Fig. 31

TITLE: Changeback

SUB TITLE: Changeback due to various reasons

PURPOSE: To check the interface L2–L3

PRE–TEST CONDITIONS:

Linkset with one available link (end of 3.19)

CONFIGURATION:

A

TYPE OF TEST: VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP

B

Link

Link

:Start traffic

1 – 2 TRAFFIC

---------->

<----------

1 – 2

TRAFFIC

1 – 1 :Activation due to various reasons (see Note)

1 – 2 CBD, SLC 1 – 1

---------->

<----------

1 – 2

CBA, SLC 1 – 1

1 – 1 TRAFFIC (from 1 – 2)

---------->

<----------

1 – 2

CBD, SLC 1 – 1

1 – X CBA, SLC 1 – 1

---------->

<----------

1 – 1

TRAFFIC (from 1 – 2)

1 – 2 TRAFFIC

---------->

<----------

1 – 2

TRAFFIC

:Wait

:Stop traffic

Note – The object of this test is to check the interface L2–L3 by provoking a changeback by different means listed in § 3 (Q.704). These reasons are: initial alignment procedure completed with success, processor outage condition has ceased at the remote signalling terminal and management request.

TEST DESCRIPTION

1.

Start traffic to B and C on link 1 – 2.

2.

Provoke the activation of the link 1 – 1 (see Note above).

3.

Check that the traffic is changed back to 1 – 1.

4.

Stop traffic and check that it has been received correctly.

5.

Repeat the test for each reason.

MTP LEVEL 3

TEST NUMBER:
4.11

PAGE:1 of 1

REFERENCE: Q.704 § 6.4, Fig. 28, Fig. 29, Fig. 31

TITLE: Changeback

SUB TITLE: Time controlled diversion procedure

PURPOSE: To check the correct operation of the time controlled diversion procedure

PRE–TEST CONDITIONS:
Linksets 1, 2 and 4 unavailable

CONFIGURATION:
B

TYPE OF TEST: VAT, CPT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP

B

SP

C

Link

Link

Link

:Start traffic

3 – 1 TRAFFIC
(to D and E)
---------->

<----------
3 – 1

TRAFFIC

(from D and E)

3 – 2 TRAFFIC
(to D and E)
---------->

<----------
3 – 2

TRAFFIC

(from D and E)

2 – 1 :Activate (depending of the deactivation mean previously used)

½
½ T21
^

<------ 2 – 1
TRA (see note 1)

3 – 1, 2 TRAFFIC STOPPED

½
½ T3
½

2 – 1 TRAFFIC
(from 3 – 1, 2)
---------->

<------ 2 – 1
TRAFFIC (from D, see note 2)

3 – 1, 2 TRAFFIC
---------->

<----------
3 – 1, 2

TRAFFIC (from E)

:Wait

:Stop traffic

Note 1 – If SP A is an STP, a TRA message is also sent from A to B after activation of link 2 – 1.

Note 2 – B performs the point restart procedure and D on reception of a TFA for A reroutes its traffic to A. These procedures are not presented to simplify the test description.

TEST DESCRIPTION

1.

Start traffic to E (and D in VAT) on linkset 3.

2.

Activate link 2 – 1.

3.

Check that T21 is started in A, and is stopped on reception of TRA from SP B (see notes).

4.

Check that traffic on linkset 3 ceased in A and that after expiration T3 traffic diverts to link 2 – 1 in accordance with the load sharing rules in A.

5.

Stop traffic and check that there were no lost messages, no duplication and no missequencing.

6.

Check that the duration of T3 is inside the specified range.

7.

Repeat the test (in VAT) without sending TRA from B to A and check that the time controlled diversion is performed when T21 expires.

MTP LEVEL 3

TEST NUMBER:
5

PAGE: 1 of 1

REFERENCE: Q.704 § 7, Fig. 29, Fig. 32

TITLE: Forced rerouting

SUB TITLE:

PURPOSE: To check that the system can perform forced rerouting

PRE–TEST CONDITIONS:
Linksets 1 and 4 unavailable

CONFIGURATION:
B

TYPE OF TEST: VAT, CPT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP

B

SP

C

Link

Link

Link

:Start traffic

2 – 1, 2 TRAFFIC
------->

to D and E

<-------

2 – 1, 2

TRAFFIC (from D)

3 – 1, 2 TRAFFIC
----------->

to D and E

<-----------

3 – 1, 2

TRAFFIC (from E)

6 – 1

:Deactivate

<--------

2 – X

TFP, PC = E

3 – 1, 2 TRAFFIC
---------->

to D and from 2 – 1, 2 to E)

<----------
3 – 1, 2

TRAFFIC (from E)

2 – 1, 2 TRAFFIC
--------->

to D

<--------

2 – 1, 2

TRAFFIC (from D)

:Wait

:Stop traffic

TEST DESCRIPTION

1.
Start traffic on linksets 2 and 3 to E (and D in VAT).

2.

Deactivate the linkset 6 and check the sending of a TFP concerning E from B to A.

3.

Stop traffic and check that the forced rerouting has been performed correctly, messages may have been lost but not missequenced or duplicated.

4.

Check that the traffic to D carried by the linksets 2 and 3 has not been disturbed (no lost messages, no duplication and no missequencing).

5.

Check that an indication was given by the system.