MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE: Q.704 § 5 Fig. 28, Fig. 29, Fig. 30

TITLE:

SUBTITLE:

PURPOSE:
simultaneously

PRE–TEST CONDITIONS:
                    Linkset with two available links

CONFIGURATION:
A

TYPE OF TEST:
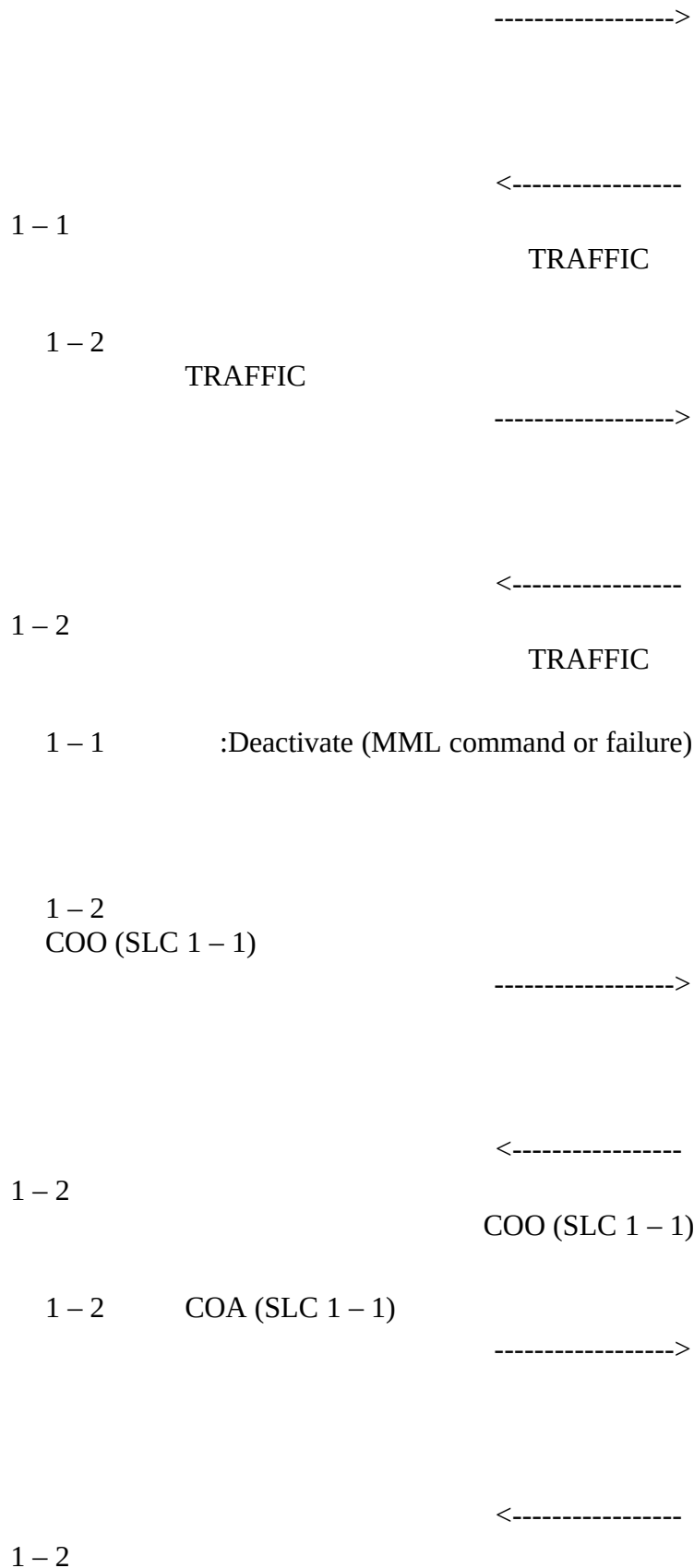VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP
A

SP
B

Link

Link

:Start traffic

1 – 1

TRAFFIC

------------------>

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

1 – 1

TRAFFIC

1 – 2

TRAFFIC

------------------>

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

1 – 2

TRAFFIC

1 – 1   :Deactivate (MML command or failure)

1 – 2
COO (SLC 1 – 1)

------------------>

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

1 – 2

COO (SLC 1 – 1)

1 – 2   COA (SLC 1 – 1)

------------------>

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

1 – 2

COA (SLC 1 – 1)

1 – 2   TRAFFIC
       (from 1 – 1)

              ------------------>

             <------------------
1 – 2

              TRAFFIC

             (from 1 – 1)

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start the traffic to B and C on all the links.

2.

Deactivate the link 1 – 1, check that the COOs and COAs for 1 – 1 are received on link 1 – 2.

3.

Check that the traffic from link 1 – 1 changed over to 1 – 2 and stop traffic.

4.

Repeat the test without sending of COA from SP B to SP A

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE:
                Q.704 § 5 Fig. 28, Fig. 29, Fig. 30

TITLE:

SUBTITLE:

PURPOSE:
previously sent

PRE–TEST CONDITIONS:
                Linkset with two available links

CONFIGURATION:
                                TYPE OF TEST:
                                    VAT

                        TYPE OF SP: ALL

MESSAGE SEQUENCE:

A

SP

　Link

Link

:Start traffic

　1 – 1

　TRAFFIC

------------------>

<------------------
1 – 1

TRAFFIC

　1 – 2

　TRAFFIC

------------------>

<------------------
1 – 2

TRAFFIC

1 – 1

:Deactivate (MML command or failure)

1 – 2

COO, SLC 1 – 1

------------------>

½

½

½T2

½

½

1 – 2

TRAFFIC

(from 1 – 1)

------------------>

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

1 – 2
TRAFFIC

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all the links.

2.

Deactivate link 1 – 1, check that a COO is received for 1 – 1 on link 1 – 2.

3.

After the expiration of T2, check that the changeover procedure is performed.

4.

Check that the duration of T2 is inside the specified range.

5.

Stop traffic and check that there was no duplication and no missequencing, some messages may be lost as the system should not perform retreival.

6.

Repeat the test but replacing COO by ECO.

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE: Q.704 § 5 Fig. 28, Fig. 29, Fig. 30

TITLE:

SUBTITLE:

PURPOSE:To check the changeover procedure on reception of a COO/COA containing an unreasonable FSN

PRE–TEST CONDITIONS:
                    Linkset with two available links

                         CONFIGURATION: A

                           TYPE OF TEST:
                                VAT
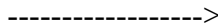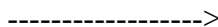
                           TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP
A

SP

Link

Link

:Start traffic

1 – 1

TRAFFIC

------------------>

<------------------
1 – 1

TRAFFIC

1 – 2

TRAFFIC

------------------>
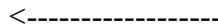
```
                                  <------------------
1 – 2
                                      TRAFFIC

    1 – 1
                   :Deactivate (MML command or failure)




    1 – 2


    COO, SLC 1 – 1
                                      ------------------>




                                  <------------------
1 – 2
                                   COA, SLC 1 – 1

                                   (unreasonable FSN)


    1 – 2


    TRAFFIC


    (from 1 – 1)
                                   ------------------>




                                  <------------------
1 – 2
                                   TRAFFIC (from 1 – 1)
```

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all the links.

2.

Deactivate link 1 – 1, check that a COO is received for 1 – 1 on link 1 – 2 and respond within T2 with a COA containing an unreasonable FSN.

3.

Stop traffic, check that the changeover procedure has been performed.

<div align="center">4.</div>

Check that there was no duplication and no missequencing. Some messages may be lost as the system should not perform retreival.

<div align="center">5.</div>

<div align="center">Check that an indication is given by the system.</div>

<div align="center">6.</div>

<div align="center">Repeat the test with a COO sent from B (instead COA) containing an unreasonable FSN.</div>

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE: Q.704 § 5 Fig. 28, Fig. 29, Fig. 30

TITLE:

SUBTITLE: Reception of a changeover acknowledgement without sending a changeover order
(- <- COA or ECA)

PURPOSE: To check the changeover procedure on reception of an unexpected changeover
acknowledgement

PRE–TEST CONDITIONS:
         Linkset with two available links

CONFIGURATION:
A

TYPE OF TEST:
VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP
A
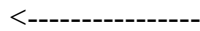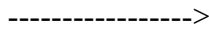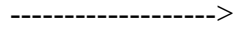

B

Link

Link

:Start traffic

1 – 1

TRAFFIC

------------------>

<----------------
1 – 1

TRAFFIC

1 – 2
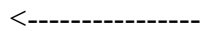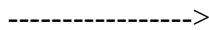
TRAFFIC

------------------>

<----------------
1 – 2

TRAFFIC

<----------------
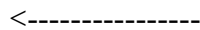
1 – 2

                         COA, SLC 1 – 1

  1 – 1

TRAFFIC

                        ----------------->

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

1 – 1

                        TRAFFIC

  1 – 2

TRAFFIC

                        ----------------->

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

1 – 2

                        TRAFFIC

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all the links.

2.

Send a COA for 1 – 1 on link 1 – 2, check that this message is ignored.

3.

Stop traffic and check that it has been received correctly.

4.

Repeat the test with an ECA instead of a COA.

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE: Q.704 § 5 Fig. 28, Fig. 29, Fig. 30

TITLE:

SUBTITLE: Reception of an additional changeover order (- <- COO or ECO)

PURPOSE:To check the action of the system when a changeover order relating to a particular
link is received after completion of changeover

PRE–TEST CONDITIONS:
         Linkset with the link 1 – 2 available

                                     CONFIGURATION:
                                          A

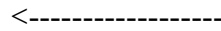   TYPE OF TEST:
                                        VAT

                                     TYPE OF SP: ALL

MESSAGE SEQUENCE:

                                     SP
                                      A

                              B

   Link

Link

:Start traffic

1 – 2

TRAFFIC

------------------->

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

1 – 2
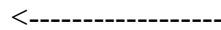
TRAFFIC

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

1 – 2

COO, SLC 1 – 1

1 – 2

ECA, SLC 1 – 1
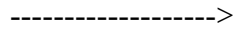
------------------->

1 – 2

TRAFFIC

------------------->

<------------------
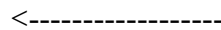
1 – 2

TRAFFIC

:Wait

:Stop traffic

TEST DESCRIPTION

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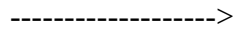
Start traffic to B and C on link 1 – 2.

2.

Send a COO for 1 – 1 on link 1 – 2 and check that an ECA is received in T2.

3.

Stop traffic and check that it has been received correctly.

4.

Check that an indication is given by the system.

5.

Repeat the test with an ECO instead of a COO.

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE:

TITLE:

SUBTITLE:

PURPOSE:
ECA

PRE–TEST CONDITIONS:
Linkset with two available links

CONFIGURATION:
A

TYPE OF TEST:
VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:
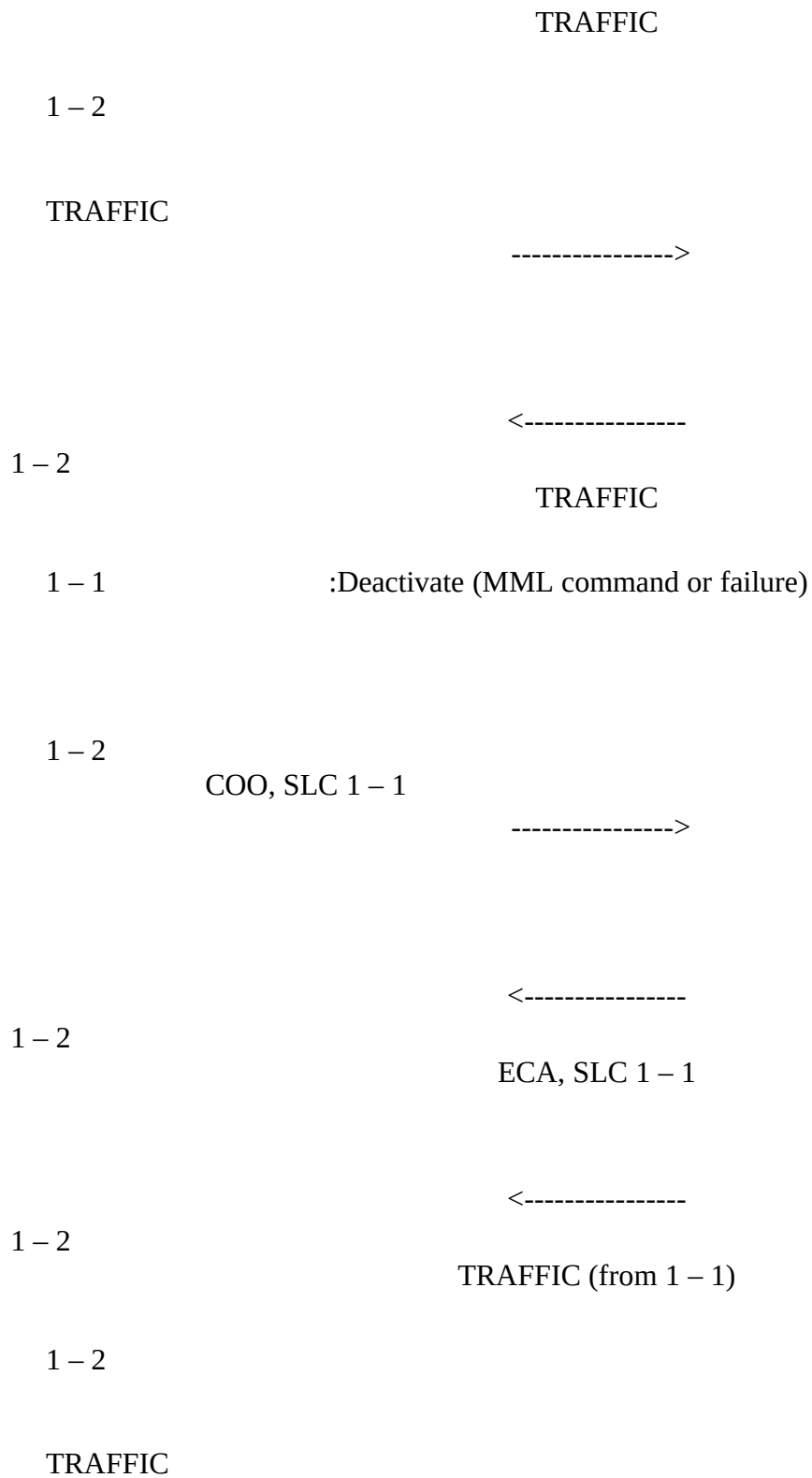
SP

A

SP
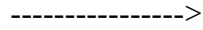
Link

Link

:Start traffic

1 – 1

TRAFFIC

----------------->

<----------------
1 – 1

TRAFFIC

1 – 2

TRAFFIC

---------------->

<----------------
1 – 2

TRAFFIC

1 – 1   :Deactivate (MML command or failure)

1 – 2
              COO, SLC 1 – 1

                         ---------------->

                         <----------------
1 – 2

              ECA, SLC 1 – 1

                         <----------------
1 – 2

              TRAFFIC (from 1 – 1)

1 – 2

TRAFFIC

(from 1 – 1)

---------------->

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.

Check the sending of a COO (from A) for 1 – 1 on 1 – 2 and check that an ECA is sent inside T2.

3.

Check that the traffic is changed over from 1 – 1 to 1 – 2.

4.

Stop traffic and check that it has been received correctly; no duplication and no missequencing. Some messages may be lost as the system should not perform retreival.

5.

Repeat the test by sending COO from B (instead of A).

MTP LEVEL 3

TEST NUMBER:
        3.8

PAGE: 1 of 1

REFERENCE:

TITLE: Changeover

SUBTITLE:

PURPOSE:To check the emergency changeover procedure when a COO is acknowledged by an ECO

PRE–TEST CONDITIONS:
                          Linkset with two available links.

                                  CONFIGURATION: A

                                  TYPE OF TEST:
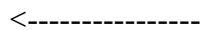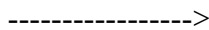   VAT

                                  TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

A

SP   B

Link

Link

:Start traffic

1 – 1

TRAFFIC

----------------->

<----------------
1 – 1
TRAFFIC

1 – 2

TRAFFIC

------------------>

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

1 – 2

TRAFFIC

1 – 1
:Deactivate (MML command or failure)

1 – 2

COO, SLC 1 – 1

------------------>

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

1 – 2

ECO, SLC 1 – 1

1 – 2

COA, SLC 1 – 1

------------------>

1 – 2

TRAFFIC

(from 1 – 1)

-------------->

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

1 – 2

TRAFFIC (from 1 – 1)

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.

Check the sending of a COO (from A) for 1 – 1 on 1 – 2 and check that an ECO is sent (before T2 expires) and a COA is received.

3.

Check that the traffic is changed over from 1 – 1 to 1 – 2.

4.

Stop traffic and check that it has been received correctly; no duplication and no missequencing. Some messages may be lost as the system should not perform retreival.

5.

Repeat the test but send COO from B (instead of A).

MTP LEVEL 3

TEST NUMBER:
            3.9

PAGE: 1 of 1

REFERENCE: Q.704 § 5 Fig. 28, Fig. 29, Fig. 30

TITLE: Changeover

SUBTITLE:

PURPOSE:To check the emergency changeover procedure when an ECO is acknowledged by a COA

PRE–TEST CONDITIONS:
                        Linkset with two available links

                        CONFIGURATION: A

                        TYPE OF TEST:
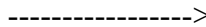   VAT

                        TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP
A

B

Link

Link

:Start traffic

1 – 1
TRAFFIC

------------------>

<----------------
1 – 1
TRAFFIC

1 – 2

TRAFFIC

------------------>

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

1 – 2

TRAFFIC

1 – 1   :Deactivate (failure)

1 – 2
ECO, SLC 1 – 1

------------------>

<----------------
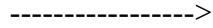
1 – 2

COA, SLC 1 – 1

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

1 – 2

TRAFFIC (from 1 – 1)

1 – 2
TRAFFIC

(from 1 – 1)

------------------>

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.

Check that an ECO is received for 1 – 1 on 1 – 2 and that a COA is sent before T2 expires.

3.

Check that traffic is changed over from 1 – 1 to 1 – 2.

<div align="center">4.</div>

Stop traffic and check that it has been received correctly; no duplication and no missequencing, some messages may be lost as the system should not perform retreival.

<div align="center">5.</div>

<div align="center">Repeat the test but send ECO from B (instead of A).</div>

MTP LEVEL 3

TEST NUMBER:
    3.10

PAGE:1 of 1

REFERENCE:
    Q.704 § 5 Fig. 28, Fig. 29, Fig. 30

TITLE:

SUBTITLE:

PURPOSE:
ECA

PRE–TEST CONDITIONS:
                        Linkset with two available links

                              CONFIGURATION: A

   TYPE OF TEST: VAT

TYPE OF SP:

MESSAGE SEQUENCE:

                                              SP
                                              A

                                              SP
                                              B

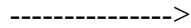   Link
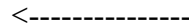

Link

:Start traffic

    1 – 1

    TRAFFIC

                              ----------------->

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

1 – 1

TRAFFIC

1 – 2

TRAFFIC

------------------>

<----------------
1 – 2

TRAFFIC

1 – 1   :Deactivate (failure)

1 – 2

ECO, SLC 1 – 1

------------------>

<----------------
1 – 2

ECA, SLC 1 – 1

<----------------
1 – 2

TRAFFIC (from 1 – 1)

1 – 2

TRAFFIC

(from 1 – 1)

----------------->

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.

Check that an ECO is received for $1 - 1$ on $1 - 2$ and that an ECA is sent before T2 expires.

3.

Check that traffic is changed over from $1 - 1$ to $1 - 2$.

4.

Stop traffic and check that it has been received correctly; no duplication and no missequencing. Some messages may be lost as the system should not perform retreival.

5.

Repeat the test but send ECO from B (instead of A).

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE:

TITLE:

SUBTITLE:

PURPOSE:
to an ECO

PRE–TEST CONDITIONS:
Linkset with two available links

CONFIGURATION: A

TYPE OF TEST:
VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

P
A

B

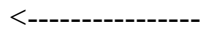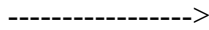
Link

Link

:Start traffic

1 – 1

TRAFFIC

--------------->

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

1 – 1

TRAFFIC

1 – 2

TRAFFIC

--------------->

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

1 – 2

TRAFFIC

1 – 1
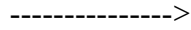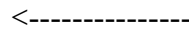
:Deactivate (failure)

1 – 2

ECO, SLC 1 – 1

--------------->

<---------------
1 – 2

                                        COO, SLC 1 – 1

   1 – 2

   ECA, SLC 1 – 1

                                        --------------->

   1 – 2

   TRAFFIC

   (from 1 – 1)

                                        --------------->

                                        <---------------
1 – 2

                                        TRAFFIC (from 1 – 1)

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.
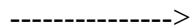
Check that an ECO is received for 1 – 1 on 1 – 2 and that a COO is sent before T2 expires and acknowledged with an ECA.

3.

Check that traffic is changed over from 1 – 1 to 1 – 2.

4.

Stop traffic and check that it has been received correctly; no duplication and no missequencing. Some messages may be lost as the system should not perform retrieval.

5.

Repeat the test but sent ECO from B (instead of A).

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE:

TITLE:

SUBTITLE:

PURPOSE: To check the emergency changeover procedure when it is initiated at the both ends simultaneously

PRE–TEST CONDITIONS:
                           Linkset with two available links

CONFIGURATION: A

TYPE OF TEST: VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP

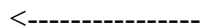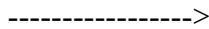   A

SP

   Link

Link

:Start traffic

   1 – 1

   TRAFFIC
                      ------------------>

                      <----------------
1 – 1
                      TRAFFIC

   1 – 2

   TRAFFIC
                      ------------------>

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

   1 – 1
          :Deactivate (failure)

1 – 2

ECO, SLC 1 – 1

----------------->

<----------------
1 – 2

ECO, SLC 1 – 1

1 – 2

ECA, SLC 1 – 1

----------------->

<----------------
1 – 2

ECA, SLC 1 – 1

1 – 2

TRAFFIC

----------------->

<----------------
1 – 2

TRAFFIC (from 1 – 1)

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.

Check that an ECO is received for $1 - 1$ on $1 - 2$ and that an ECO is sent before T2 expires and acknowledged with ECA.

3.

Check that traffic is changed over from $1 - 1$ to $1 - 2$.

4.

Stop traffic and check that it has been received correctly; no duplication and no missequencing. Some messages may be lost as the system should not perform retrieval.

5.

Repeat the test without sending ECA from SP B to SP A.

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE:

TITLE:

SUBTITLE:

PURPOSE: To check the changeover procedure when the link failure causing the changeover is removed during the procedure.

PRE–TEST CONDITIONS:
Linkset with two available links

CONFIGURATION: A

TYPE OF TEST:
VAT

TYPE OF SP: ALL

MESSAGE SEQUENCE:

SP   A

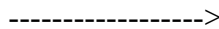SP

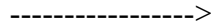Link

Link

:Start traffic

1 – 1

          TRAFFIC

                 ------------------>

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

1 – 1

                  TRAFFIC

1 – 2

          TRAFFIC

                 ------------------>

$$\xleftarrow{\text{------------------}}$$

1 – 2
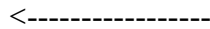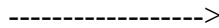
TRAFFIC

1 – 1   :Deactivate (failure)

1 – 1   :Activate (end of failure)

:Wait

:Stop traffic

Note – This test will be performed if applicable (some systems may terminate the changeover procedure, then perform the changeback).

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.

Deactivate the link 1 – 1 and reactivate this link immediately.

3.

Stop traffic and check that the changeover procedure has not been performed. Depending the time between the deactivation and the reactivation, a COO may be sent or not.

4.

Check that the traffic used the links 1 – 1 and 1 – 2 normally.

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE:

TITLE:

SUBTITLE:

PURPOSE:

PRE–TEST CONDITIONS:

Linkset with three available links

CONFIGURATION: A

TYPE OF TEST: VAT

TYPE OF SP:

MESSAGE SEQUENCE:

SP
A
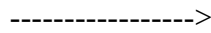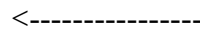
B

Link

Link

:Start traffic

1 – 1

TRAFFIC

------------------>

<----------------
1 – 1

TRAFFIC

  1 – 2

TRAFFIC

------------------>

<----------------
1 – 2

TRAFFIC

  1 – 3

TRAFFIC

------------------>

<----------------
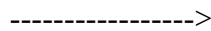1 – 3

TRAFFIC

1 – 1, 1 – 2   :Deactivate (MML command or failure)

1 – 3

COO, SLC 1 – 1

---------------->

1 – 3

COO, SLC 1 – 2

---------------->

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

1 – 3

COA, SLC 1 – 1

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

1 – 3

COA, SLC 1 – 2

1 – 3

TRAFFIC

(from 1 – 1 and

1 – 2)

---------------->

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

1 – 3

TRAFFIC

(from 1 – 1 and

1 – 2)

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.

Deactivate the links 1 – 1 and 1 – 2 simultaneously.

3.

Check that COOs are received on 1 – 3 for 1 – 1 and 1 – 2, and respond with COAs inside T2s.
Check that traffic is changed over from 1 – 1 and 1 – 2 to 1 – 3.

4.

Stop traffic and check that it has been received correctly (no lost messages, no duplication and no missequencing).

MTP LEVEL 3

TEST NUMBER:

PAGE:

REFERENCE: Q.704 § 5 Fig. 28, Fig. 29, Fig. 30

TITLE:

SUBTITLE:

PURPOSE:

PRE–TEST CONDITIONS:
Linkset with all links available

CONFIGURATION: A

TYPE OF TEST:
VAT

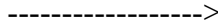TYPE OF SP: ALL

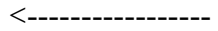MESSAGE SEQUENCE:

SP
A

SP

Link
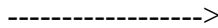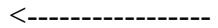

Link

:Start traffic

    1 – 1

    TRAFFIC

                       ------------------>

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

1 – 1

                        TRAFFIC

    1 – 2

    TRAFFIC

                       ------------------>

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

1 – 2

                        TRAFFIC

    1 – 3

    TRAFFIC

                       ------------------>

                       <-----------------
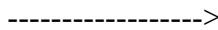
1 – 3
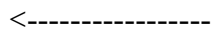
                        TRAFFIC

1 – 4

TRAFFIC

------------------>

<-----------------
1 – 4

TRAFFIC

1 – 1

:Deactivate (MML command or failure)

1 – 2, 3 or 4
COO, SLC 1 – 1

------------------>

<-----------------
1 – 2, 3 or 4

1 – 2

TRAFFIC

(from 1 – 1)

------------------>

<-----------------
1 – 2

TRAFFIC (from 1 – 1)

1 – 3

TRAFFIC

(from 1 – 1)

                 ------------------>

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

1 – 3

                 TRAFFIC (from 1 – 1)

1 – 4

TRAFFIC

(from 1 – 1)

                 ------------------>

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

1 – 4

                 TRAFFIC (from 1 – 1)

:Wait

:Stop traffic

TEST DESCRIPTION

1.

Start traffic to B and C on all links.

2.

Deactivate the link 1 – 1 and check that the changeover is performed to links 1 – 2, 1 – 3 and 1 – 4.

3.

Stop traffic and check that it has been shared on the alternative links according to the load sharing policy of this linkset.

4.

Check that, for each destination and for each SLS, there was no lost messages, no duplication and no missequencing.