Telecommunications Recommendation
extension "A"

SPECIFICATION FOR
COMMON CHANNEL SIGNALING SYSTEM No. 7

Message Transfer Part
/MTP/
References:
- CCITT Blue Book Recommendation Q.701  Functional Description of MT ADP.
- CCITT Blue Book Recommendation Q.702  Signaling data link.
- CCITT Blue Book Recommendation Q.703  Signaling link.
- CCITT Blue Book Recommendation Q.704  Signaling network functions and messages.
- CCITT Blue Book Recommendation Q.705  Signaling network structure.
- CCITT Blue Book Recommendation Q.706  Message Transfer Part Signaling Performance
- ETSI Specifications  ETS 300 008 (December 1991) Message Transfer Part (MT ADP) to support international interconnection.
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CHAPTER 1
General

This document describes the technical requirement of Message Transfer Part of Signaling System No.7 to be applied in Signaling Points SP and Signaling Transfer Points STP implemented in the International Gateway Exchanges IGW (MT ADP-I) and the local and transit exchanges of the national telecommunications network (MT ADP-N). The differences are marked with MT ADP-I and MT ADP-N respectively.

This document is based on CCITT Recommendations Q.701-Q.704 and Q.707 issued in the Blue Book and some of the requirements in ETS 300 008 are also applied.

This document is structured as an "Exceptions and Clarifications" specification which is intended to give a clear description of the alteration from the base documents. The specifications are written in English in order to align the description as close as possible to the terminology used in CCITT Recommendations and ETSI Standards.
CHAPTER 2
Functional Description of MT ADP (Q.701)
Functional description of MT ADP (Q.701)

1. Introduction

1.1 General
    Shall apply.

1.2 Objectives
    Shall apply.

1.3 General characteristic

1.3.1 Method of description
    Shall apply.

1.3.2 Primitives
    Shall apply.

1.3.3 Peer-to-peer communication
    Shall apply.

1.3.4 Contents of Recommendations Q.701 to Q.707 Series relating to the MT ADP
    Shall apply.

2 Signaling system structure

2.1 Basic functional division
    Shall apply.

2.2 Functional levels

2.2.1 General
    Shall apply.

2.2.2 Signaling data link functions (level 1)
    Shall apply.

Note: Analogue Signaling data links are not applied. The digital Signaling channels are derived from the 2048 kbit/s digital path. Lower bit rates than 64-kbit/s are not applied.

2.2.3 Signaling link functions (level 2)
    Shall apply.

2.2.4 Signaling network functions (level 3)
    Shall apply.
2.2.5 User Part functions (level 4)
   Shall apply.

2.3 Signaling message
   Shall apply.

2.4 Functional interface
   Shall apply.

3 Message transfer part and the Signaling network

3.1 General
   Shall apply.

3.1.1 Signaling network components
   Shall apply.

3.1.2 Signaling modes
   Shall apply.

3.1.3 Signaling point modes
   Shall apply.

3.1.4 Message labeling
   Shall apply.

Note: The standard routing label shall apply for both international and national applications.

3.2 Signaling message handling functions
   Shall apply.

3.2.1 Message routing
   Shall apply.
3.2.2 Message distribution
Shall apply.

3.2.3 Message discrimination
Shall apply.

3.3 Signaling network management functions
Shall apply.

3.3.1 Signaling traffic management
Shall apply.

3.3.2 Signaling link management
The basic set of Signaling link management procedures shall apply. Optional alternative sets (automatic reconfiguration of terminal devices and Signaling data links) shall not apply.

3.3.3 Signaling route management
Shall apply.

3.4 Testing and maintenance functions
Shall apply.

3.5 Use of the Signaling network

3.5.1 Signaling network structure
Shall apply.

3.5.2 Provision of Signaling facilities
Shall apply.

3.5.3 Application of Signaling network functions
Shall apply.

4 Message transfer capability
4.1 General
   Shall apply.

4.2 User location in system structure
   Shall apply.

4.3 Message content

   4.3.1 Code transparency
       Shall apply.

   4.3.2 Service information
       Shall apply.

   4.3.3 Message label
       Shall apply.

   4.3.4 Message length
       Shall apply.

4.4 User accessibility
   Both associated and quasi-associated Signaling modes shall apply.

4.5 Transport service performance
   Shall apply.

   4.5.1 Message transfer delay
       Shall apply.

   4.5.2 Message transfer failures
       Shall apply.

5 Differences from the Blue Book
5.1 Processor outage
   Shall apply.

5.2 Availability of adjacent Signaling point
   Shall apply.

5.3 Handling of level 3 messages
   Shall apply.

5.4 Transferred controlled messages
   Shall apply.

5.5 Load balancing during changeback
   Shall apply.

5.6 Time-controlled changeover procedure
   Shall apply.

5.7 Change back
   Shall apply.

5.8 MT ADP restart
   Shall apply.

5.9 Signaling traffic flow control
   Shall apply.

5.10 User part availability control
   Shall apply.

5.11 Signaling route management
   Shall apply.
6 Compatibility in the message transfer part

Shall apply.

6.1 Unreasonable Information

6.1.1 Messages containing an unallocated SI0 value

Shall apply.

6.1.2 Messages containing an unallocated H0/H1 code

Shall apply.

6.1.3 Messages containing an unallocated value in a recognised field

Shall apply.

6.2 Treatment of spare fields

Shall apply.

6.3 Lack of acknowledgement

Shall apply.

7 Interworking of Yellow, Red and Blue MT ADP implementations

Shall apply

8 Primitives and Parameters of the Message Transfer Part

Shall apply.

8.1 Transfer

Shall apply.

8.2 Pause

Shall apply.

8.3 Resume

Shall apply.
8.4 Status

    Shall apply.

    **Note:** National options concerned with congestion handling shall not apply.

8.5 Restart

    Shall not apply.
CHAPTER 3
Signaling Data Link (Q.702)
Signaling data link (Q.702)

1 General

1.1 A Signaling data link is...

   Shall apply.

1.2 Functional configuration of...

   Shall apply.

   Note: Analogue Signaling data links are not applied.

1.3 A digital Signaling data link is...

   Shall apply.

   Note: The digital Signaling channels are derived from the 2048 kbit/s digital path.

1.4 An analogue Signaling data link is...

   Analogue Signaling links are not applied.

1.5 Signaling System No.7 is capable of...

   Shall apply.

1.6 The operational Signaling data link...

   Shall apply.

1.7 Equipment such as echo suppressors...

   Shall apply.

1.8 64-kbit/s digital Signaling channels...

   Shall apply.

2 Signaling bit rate

2.1 General
2.1.1 The standard bit rate on a digital bearer...
    Shall apply.

2.1.2 Lower bit rates may be adopted...
    Lower bit rates are not applied.

2.1.3 The minimum Signaling bit rate...
    Lower bit rates than 64-kbit/s shall not apply.

2.2 Use of bit rates lower than 64 kbit/s
    Shall not apply.

2.2.1 For national telephone call control...
    Shall not apply.

2.2.2 Signaling System No.7...
    Shall not apply.

2.2.3 The possible use of...
    Shall not apply.

3 Error characteristic and availability
    Shall apply.

4 Interface specification points

4.1 Interface requirements may be...
    Interface specification point C shall apply.

4.2 For the international application...
    Interface specification point C shall apply.

4.3 Interface requirements for an international digital...
4.4 Interface requirements for an international analogue...
   Shall not apply.

4.5 Interface at point A may or...
   Shall not apply.

4.6 Implementations which do not follow all the requirements...
   Shall apply.

5 Digital Signaling data link

5.1 Signaling data link derived from the 2048-kbit/s...
   Shall apply.

5.2 Signaling data link derived from the 8448-kbit/s...
   Shall not apply.

5.3 Signaling data link derived from the 1544 kbit/s...
   Shall not apply.

5.4 Signaling data link established over a digital path made up by digital sections based on different digital hierarchies
   Shall not apply.

5.5 Signaling data link established over data circuits
   Shall not apply.

6 Analogue Signaling data link

   Shall not apply.
CHAPTER 4
Signaling link (Q.703)
Signaling link (Q.703)

1 General

1.1 Introduction

1.1.1 This Recommendation describes...

    Shall apply.

1.1.2 The Signaling link functions...

    Shall apply.

1.2 Signal unit delimitation and alignment

    Shall apply.

1.3 Error detection

    Shall apply.

1.4 Error correction

1.4.1 Two forms of error correction...

    Shall apply.

1.4.2 The basic method is a non compelled...

    Shall apply.

1.4.3 The preventive cyclic retransmission method...

    Shall apply.

1.5 Initial alignment

    Shall apply.
1.6 Signaling link error monitoring
   Shall apply.

1.7 Link state control functions
   Shall apply.

1.8 Flow control
   Shall apply.

2 Basic signal unit format

2.1 General
   Shall apply.

2.2 Signal unit format
   Shall apply.

2.3 Function and codes of the signal unit fields
2.3.1 General
   Shall apply.

2.3.2 Flag
   Shall apply.

2.3.3 Length indicator
   Shall apply.

2.3.4 Service information octet
   Shall apply.

Note: Messages with different priorities are not applied.

2.3.5 Sequence numbering
   Shall apply.
2.3.6 Indicator bits
   Shall apply.

2.3.7 Check bits
   Shall apply.

2.3.8 Signaling information field
   Shall apply.

2.3.9 Status field
   Shall apply.

2.3.10 Spare fields
   Shall apply.

2.4 Order of bit transmission
   Shall apply.

3  Signal unit delimitation

3.1 Flags
   Shall apply.

3.2 Zero insertion and deletion
   Shall apply.

4  Acceptance procedure

4.1 Acceptance of alignment

4.1.1 A flag which is not followed...
   Shall apply.

4.1.2 If seven or more consecutive...
4.1.3 After deletion of the...
   Shall apply.

4.1.4 When the "octet counting" mode is...
   Shall apply

4.2 Error detection
   Shall apply.

5  **Basic error correction method**

5.1 General
   Shall apply.

5.2 Acknowledgements (positive and negative acknowledgement)

5.2.1 Sequence numbering
   Shall apply.

5.2.2 Signal unit sequence control
   Shall apply.

5.2.3 Positive acknowledgement
   Shall apply.

5.2.4 Negative acknowledgement
   Shall apply.

5.3 Retransmission

5.3.1 Response to a positive acknowledgement
   Shall apply.
5.3.2 Response to a negative acknowledgement
    Shall apply.

5.3.3 Repetition of message signal units
    Shall not apply.

6 Error correction by preventive cyclic retransmission

6.1 General
    Shall apply.

6.2 Acknowledgements

6.2.1 Sequence numbering
    Shall apply.

6.2.2 Signal unit sequence control
    Shall apply.

6.2.3 Positive acknowledgement
    Shall apply.

6.3 Preventive cyclic retransmission

6.3.1 Response to a positive acknowledgement
    Shall apply.

6.3.2 Preventive cyclic retransmission procedure
    Shall apply.

6.4 Forced retransmission
    Shall apply.
6.4.1 Forced retransmission procedure
   Shall apply.

6.4.2 Limitation of the values $N_1$ and $N_2$
   Shall apply.

7 Initial alignment procedure

7.1 General
   Shall apply.

7.2 Initial alignment status indications
   Shall apply.

7.3 Initial alignment procedure
   Shall apply.

7.4 Proving periods
   Shall apply.

8 Processor outage
   Shall apply.

9 Level 2 flow control

9.1 General
   Shall apply.

9.2 Detection of congestion
   Shall apply.

9.3 Procedure in the congestion situation
9.4 Congestion abatement procedure

Shall apply.

10 Signaling link error monitoring

10.1 General

Shall apply.

10.2 Signal unit error rate monitor

10.2.1 The signal unit error rate monitor has...

Shall apply.

10.2.2 The signal unit error rate monitor may...

Shall apply.

10.2.3 In the "octet counting" mode...

Shall apply.

10.2.4 When the link is brought into service...

Shall apply.

10.2.5 The values of the three parameters...

Only parameters for 64 Kbit/s shall be applicable.

10.2.6 In the case where only random...

Shall apply.

10.3 Alignment error rate monitor

10.3.1 The alignment error rate monitor...

Shall apply.
10.3.2 The counter is started from zero...

Shall apply.

10.3.3 When the counter reaches a threshold...

Shall apply.

10.3.4 The values of the four parameters...

Shall apply.

11 Level 2 codes and priorities

11.1 Link status signal unit

11.1.1 The link status signal unit...

Shall apply.

11.1.2 The format of the one octet...

Shall apply.

11.1.3 The use of link status indications...

Shall apply.

11.2 Transmission priorities within level 2

11.2.1 Five different items can be...

Shall apply.

11.2.2 For the basic error correction method...

Shall apply.

11.2.3 For the preventive cyclic retransmission...

Shall apply.

12 State transition diagrams and timers
12.1 Sections 12 contains the description of...

Shall apply with regard to the relevant level 2 functions.

12.3 Timers  (Bit rate of 64 kbit/s)

<table>
<thead>
<tr>
<th>T1</th>
<th>&quot;Alignment ready&quot;</th>
<th>40-50 sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2</td>
<td>&quot;Not aligned&quot;</td>
<td>5-150 sec</td>
</tr>
<tr>
<td>T3</td>
<td>&quot;Aligned&quot;</td>
<td>1-2 sec</td>
</tr>
<tr>
<td>T4</td>
<td>&quot;Proving period&quot; normal</td>
<td>7.5-9.5 sec</td>
</tr>
<tr>
<td></td>
<td>&quot;Proving period&quot; emergency</td>
<td>0.4-0.6 sec</td>
</tr>
<tr>
<td>T5</td>
<td>&quot;Sending SIB&quot;</td>
<td>0.08-0.12 sec</td>
</tr>
<tr>
<td>T6</td>
<td>&quot;Remote congestion&quot;</td>
<td>3-6 sec</td>
</tr>
<tr>
<td>T7</td>
<td>&quot;Excessive delay of ack.&quot;</td>
<td>0.5-2 sec</td>
</tr>
</tbody>
</table>
CHAPTER 5
Signaling network functions (Q.704)
Signaling network functions (Q.704)

1 Introduction

1.1 General characteristics of the signaling network functions

1.1.1 This Recommendation describes the functions...
    Shall apply.

1.1.2 According to these principles...
    Shall apply.

1.2 Signaling message handling

1.2.1 The purpose of the Signaling message handling...
    Shall apply.

1.2.2 The Signaling message handling functions...
    Shall apply.

1.2.3 As illustrated in Figure 1/Q.704, the Signaling...
    Shall apply.
1.3 Signaling network management

1.3.1 The purpose of the Signaling network management...
   Shall apply.

1.3.2 As illustrated in Figure 1/Q.704, the Signaling...
   Shall apply.

1.3.3 §§ 4 to 11 specify the procedures...
   Shall apply.

   Note: Signaling point restart procedure and national options in Signaling traffic flow control procedure shall not apply.

1.3.4 The different procedures pertaining...
   Shall apply.

   Note: Only the basic Signaling link management functions of § 12 shall apply.

1.3.5 The different procedures pertaining...
   Shall apply.

   Note: National options (transfer restricted and Signaling-route-set congestion-test procedures) shall not apply.

1.3.6 The format characteristic, common to...
   Shall apply.

1.3.7 Labelling, formatting and coding...
   Shall apply.

1.3.8 The description of Signaling network...
   Shall apply with regard to the applicable level 3 functions.

2 Signaling message handling

2.1 General
2.1.1 Signaling message handling comprises...
    Shall apply.

2.1.2 When a message comes from level 4...
    Shall apply.

2.1.3 When a message comes from level 2...
    Shall apply.

2.1.4 In the case that the message is destined to...
    Shall apply.

2.1.5 Message routing, discrimination and distribution ...
    Shall apply.

2.1.6 The position and coding of service indicator...
    Shall apply.

2.1.7 In addition to the normal Signaling message handling...
    Shall not apply.

2.2 Routing label

2.2.1 The label contained in a Signaling message...
    Shall apply.
    
    **Note:** The standard routing label applies also for the national application.

2.2.2 The standard routing label has a length...
    Shall apply.

2.2.3 The destination point code (DPC) indicates...
    Shall apply.
2.2.4 The Signaling link selection (SLS) field...

Shall apply.

2.2.5 Form the rule stated in § 2.2.4 above...

Shall apply.

2.2.6 The above principles should also apply...

The standard label structure shall apply.

2.3 Message routing function

2.3.1 The message routing functions based...

Shall apply.

2.3.2 Two basic cases of load sharing...

Shall apply.

2.3.3 The routing information mentioned in § 2.3.1...

Shall apply. See also notes in §§ 3 and 4

2.3.4 Handling of level 3 messages

2.3.4.1 Messages not related to a Signaling link...

Shall apply.

2.3.4.2 Messages related to a Signaling link...

Shall apply.

2.3.5 Handling of messages under Signaling link congestion

Note: Both MT ADP-N and MT ADP-I shall apply the same congestion handling procedures.

2.3.5.1 In the international Signaling network...

Shall apply.

Note: Congestion priorities shall not apply.
2.3.5.2 In national Signaling networks using multiple congestion priorities

Shall not apply.

2.4 Message discrimination and distribution functions

2.4.1 The routing criteria and load sharing method...

Shall apply.

2.4.2 If the destination point code of the message...

Shall not apply.

Note: The MT ADP-STATUS primitive is applied for the indication of the Signaling network congestion.

2.4.3 In the case of a Signaling point...

Shall apply.

Note: Different label structures are not used.

3 Signaling network management

3.1 General

3.1.1 The Signaling network management functions provide...

Shall apply.

3.1.2 The occurrence of, or recovery from failures or...

Shall apply.

Note: Signaling route restricted state shall not apply.

3.1.3 Whenever a change in the status of a Signaling link...

Shall apply.

Note: Signaling point restart, automatic allocation of Signaling terminals and Signaling data links, transfer restricted and Signaling-route-set-congestion-test procedures shall not apply.

3.1.4 An overview of the use of the procedures...

Shall apply.
3.2 Status of Signaling links

3.2.1 A Signaling link is always considered by level 3...
    Shall apply.

3.2.2 Signaling link failure
    Shall apply.

3.2.3 Signaling link restoration
    Shall apply.

3.2.4 Signaling link deactivation
    Shall apply.

3.2.5 Signaling link activation
    Shall apply.

3.2.6 Signaling link blocking
    Shall apply.

3.2.7 Signaling link unblocking
    Shall apply.

3.2.8 Signaling link inhibiting
    Shall apply.

3.2.9 Signaling link uninhibiting
    Shall apply.

3.3 Procedures used in connection with link status changes
    Shall apply.

3.3.1 Signaling link failed

3.3.1.1 Signaling traffic management...
3.3.1.2 Signaling link management.
   Shall apply.

3.3.1.3 Signaling route management:
   Shall apply.

   **Note:** Signaling route restricted state shall not apply.

3.3.2 Signaling link restored

3.3.2.1 Signaling traffic management:
   Shall apply.

3.3.2.2 Signaling link management:
   All available Signaling links shall be active. When an unavailable Signaling link has been made available, it has to be activated immediately.

3.3.2.3 Signaling route management:
   Shall apply.

3.3.3 Signaling link deactivated

3.3.3.1 Signaling traffic management:
   Shall apply.

3.3.3.2 Signaling link management:
   All available Signaling links shall be active.

3.3.3.3 Signaling route management:
   Shall apply.

3.3.4 Signaling link activated

3.3.4.1 Signaling traffic management:
   Shall apply.
3.3.4.2 Signaling link management...
   Shall not apply. All available Signaling links shall be active.

3.3.4.3 Signaling route management...
   Shall apply.

3.3.5 Signaling link blocked

3.3.5.1 Signaling traffic management...
   Shall apply.

   Note: The national option shall not apply.

3.3.5.2 Signaling route management...
   Shall apply.

   Note: Signaling route set restricted state and transfer restricted procedures shall not apply.

3.3.6 Signaling link unblocked

3.3.6.1 Signaling traffic management...
   Shall apply.

3.3.6.2 Signaling route management...
   Shall apply.

3.3.7 Signaling link inhibited

3.3.7.1 Signaling traffic management...
   Shall apply.

3.3.7.2 Signaling link management...
   All available Signaling links shall be active.

3.3.8 Signaling link uninhibited

3.3.8.1 Signaling traffic management...
   Shall apply.
3.3.8.2 Signaling link management...
    Shall not apply. All available Signaling links shall be active.

3.3.8.3 Signaling route management...
    Shall apply.

3.4 Status of Signaling routes
    Shall apply.

Note: Signaling route restricted state shall not apply.

3.4.1 Signaling route unavailability
    Shall apply.

3.4.2 Signaling route availability
    Shall apply.

3.4.3 Signaling route restricted
    Shall not apply.

3.5 Procedures used in connection with route status changes
    Shall apply.

3.5.1 Signaling route unavailable

3.5.1.1 Signaling traffic management...
    Shall apply.

3.5.1.2 Signaling route management...
    Shall apply.

3.5.2 Signaling route available

3.5.2.1 Signaling traffic management...
    Shall apply.

3.5.2.2 Signaling route management...
3.5.3 Signaling route restricted
Shall not apply.

3.6 Status of Signaling points
Shall apply.

3.6.1 Signaling point unavailability

3.6.1.1 Unavailability of a Signaling point itself...
Shall apply.

3.6.1.2 Unavailability of an adjacent Signaling point...
Shall apply.

3.6.2 Signaling point availability

3.6.2.1 Availability of a Signaling point itself...
Shall apply.

3.6.2.2 Availability of an adjacent Signaling point...
Shall apply.

Note: Transfer restricted message shall not apply.

3.7 Procedures used in connection with point status changes

3.7.1 Signaling point unavailable
Shall apply.

3.7.2 Signaling point available

3.7.2.1 Signaling traffic management...
The Signaling point restart procedure shall not apply.

3.7.2.2 Signaling link management...
The Signaling link restoration procedure shall apply. The Signaling point restart procedure shall not apply.

3.7.2.3 Signaling route management...
The transfer prohibited procedure shall apply. The transfer restricted and the Signaling point restart procedures shall not apply.

3.7.3 Signaling point congested...
Shall not apply.

3.8 Signaling network congestion

3.8.1 General
Shall apply.

3.8.2 Congestion status of Signaling links

3.8.2.1 When predetermined levels of MSU fill in the...
Shall apply.

Note: For MT ADP-N also one congestion onset and one congestion abatement threshold shall be provided. National options (message priorities and multiple congestion threshold) shall not apply.

3.8.2.2 In national Signaling networks with multiple...
Shall not apply

3.8.2.3 In national Signaling networks using multiple...
Shall not apply.

3.8.3 Procedures used in connection with link congestion status changes
Shall apply.

3.8.4 Congestion states of Signaling route sets
a) Shall apply.
b) Shall not apply.
c) Shall not apply.

3.8.5 Procedures used in connection with route set congestion status changes
Shall apply.

3.8.5.1 Signaling traffic management...
Shall apply.

3.8.5.2 Signaling route management...
Shall not apply.

4 Signaling traffic management

4.1 General

4.1.1 The Signaling traffic management function...
Shall apply.
4.1.2  The diversion of traffic in the cases of...
    Shall apply.

    **Note:** Signaling route restricted state and Signaling point restart procedure shall not apply.

4.1.3  The Signaling traffic flow control procedures...
    Shall apply.

4.2  Normal routing situation

4.2.1  Signaling traffic to be sent to...
    Shall apply.

    **Notes:** All available Signaling links shall be active.
    Priorities between Signaling links in a link set shall not apply.

4.2.2  Message routing (normal as well as alternative)...
    Shall apply.

4.3  Signaling link unavailability

4.3.1  When Signaling link becomes unavailable...
    Shall apply.

4.3.2  In the case when there is one or more alternative...
    Shall apply.

4.3.3  In the case when there is no alternative...
    Shall apply.

4.4  Signaling link availability

4.4.1  When previously unavailable Signaling link...
    Shall apply.

4.4.2  In the case when the link set, to which...
    Shall apply.

4.4.3  In the case when the link set (combined link set)...
    Shall apply.

4.5  Signaling route unavailability
    Shall apply.

4.6  Signaling route availability
    Shall apply.

4.7  Signaling route restriction
    Shall not apply.

4.8  Signaling point availability
    Shall not apply.
5  Changeover

5.1  General

5.1.1  The objective of the changeover procedure...
Shall apply.

5.1.2  Changeover includes the procedures to be used...
Shall apply.

5.2  Network configurations for changeover

5.2.1  Signaling traffic diverted from an unavailable...
Shall apply.

5.2.2  As result of these arrangements, and of the message...
Shall apply.

5.3  Changeover initiation and actions

5.3.1  Changeover is initiated at a Signaling point...
Shall apply.

5.3.2  In the case when there is no traffic to transfer...
Shall apply.

5.3.3  If no alternative Signaling link exist...
Shall apply.

5.3.4  In some cases of failures or in some network...
Shall apply.

5.4  Buffer updating procedure

5.4.1  When a decision to changeover is made...
Shall apply.

5.4.2  The changeover order and changeover acknowledgement...
Shall apply.

5.4.3  Upon reception of a changeover order or...
Shall apply.

5.5  Retrieval and diversion of traffic
Shall apply.

5.6  Emergency changeover procedures

5.6.1  Due to the failure in a Signaling terminal...
Shall apply.
5.6.2 Time controlled changeover is initiated when...
   Shall apply.

5.6.3 Due to failures, it may be impossible for...
   Shall apply.

5.7 Procedures in abnormal conditions

5.7.1 The procedures described in this section allow...
   Shall apply.

5.7.2 If no changeover message in response to...
   Shall apply.

5.7.3 If a changeover order or acknowledgement containing...
   Shall apply.

5.7.4 If a changeover acknowledgement is received...
   Shall apply.

5.7.5 If a changeover order is received without...
   Shall apply.

6 Changeback

6.1 General

6.1.1 The objective of the changeback procedure...
   Shall apply.

6.1.2 Changeback includes the basic procedures to be used...
   Shall apply.

6.2 Changeback initiation and actions

6.2.1 Changeback is initiated at a Signaling point...
   Shall apply.
   a) Shall apply.
   b) i) Shall not apply.
   ii) Shall apply.
   iii) Shall not apply.

6.2.2 In the case when there is no traffic to transfer...
   Shall apply.

6.2.3 In the case that the Signaling link made...
   Shall apply.
   Note: The transfer restricted procedure shall not apply.

6.2.4 In the case that the Signaling link made...
   Shall not apply.

6.2.5 If the Signaling point at the far end of the link...
MESSAGE TRANSFER PART

Shall apply.

Note: Signaling Point Restart procedure shall not apply.

6.3 Sequence control procedure

6.3.1 When a decision is made at a given Signaling point...
Shall apply.

6.3.2 The concerned Signaling point will restart...
Shall apply.

6.3.3 The changeback declaration and changeback...
Shall apply.

6.3.4 A particular configuration of the changeback code...
Shall apply.

6.3.5 In the case that a Signaling point ends...
Shall apply.

6.4 Time controlled diversion procedure

Note: Time controlled diversion procedure not applied concerning Signaling point restart. The procedure shall apply in cases of controlled rerouting and changeback from another linkset.

6.4.1 The time controlled diversion procedure...
Shall apply.
Note: Signaling Point Restart procedure shall not apply.

6.4.2 When changeback is initiated after the...
Shall apply.
Note: Signaling Point Restart procedure shall not apply.

6.5 Procedures in abnormal conditions

6.5.1 If a changeback acknowledgement is received...
Shall apply.

6.5.2 If a changeback declaration is received after...
Shall apply.

6.5.3 If no changeback acknowledgement is received...
Shall apply.

7 Forced rerouting

7.1 General

7.1.1 The objective of the forced rerouting procedure...
Shall apply.

7.1.2 Forced rerouting is the basic procedure...
Shall apply.
7.2 Forced rerouting initiation and actions

7.2.1 Forced rerouting is initiated at a Signaling point...
   Shall apply.

7.2.2 In the case when there is no Signaling traffic...
   Shall apply.

7.2.3 If no alternative route exist for Signaling traffic...
   Shall apply.

8 Controlled rerouting

8.1 General

8.1.1 The objective of the controlled rerouting procedure...
   Shall apply.

8.1.2 Controlled rerouting is the basic procedure...
   a) Shall apply.
   b) Shall not apply.

8.2 Controlled rerouting initiations and actions

8.2.1 Controlled rerouting is initiated at a Signaling...
   Shall apply.
   Note: Actions in connection with the transfer restricted procedure shall not apply.

8.2.2 In the case when there is no Signaling traffic...
   Shall apply.

8.2.3 If the destination was inaccessible or restricted...
   Shall apply.
   Note: Transfer restricted procedure shall not apply.

9 Signaling point restart
   Shall not apply.

10 Management inhibiting

10.1 General
   Shall apply.

10.2 Inhibiting initiation and actions
   Shall apply.

10.3 Uninhibiting initiation and actions
   Shall apply.

10.3.1 Management-initiated uninhibiting
   Shall apply.
10.3.2 Signaling routing control initiated uninhibiting
   Shall apply.

10.4 Receipt of unexpected management inhibition messages
   Shall apply.

10.5 Management inhibited link status and processor recovery
   Shall apply.

10.6 Inhibit test procedure
   Shall apply.

10.6.1 A local inhibit test is performed when...
   Shall apply.

10.6.2 A remote inhibit test is performed when...
   Shall apply.

11 Signaling traffic flow control

11.1 General
   Shall apply.

11.2 Flow control indications

11.2.1 Signaling route set unavailability
   Shall apply.

11.2.2 Signaling route set availability
   Shall apply.

11.2.3 Signaling route set congestion (International Signaling network)

11.2.3.1 When the congestion status of a Signaling...
   Shall apply.

11.2.3.2 After the reception of a transfer controlled...
   Shall apply.

11.2.3.3 When the status of a Signaling route set...
   Shall apply.

11.2.4 Signaling route set congestion (National option with congestion priorities)
   Shall not apply.

11.2.5 Signaling route set congestion (National option without congestion priorities)
   Shall not apply.

11.2.6 Signaling point/Signaling transfer point congestion
   Shall not apply.

11.2.7 MT ADP user flow control
12 Signaling link management

12.1 General

12.1.1 The Signaling link management function is used...
The basic set of Signaling link management procedures shall apply. Optional alternative sets shall not apply.

12.1.2 A Signaling link set consist of one or more...
The basic set of Signaling management procedures shall apply. The automatic allocation of Signaling terminals and Signaling data links shall not apply.

12.1.3 When a link set is to be brought into service...
Shall apply.
a) Shall apply.
b) Shall not apply.
c) Shall not apply.

12.2 Basic Signaling link management procedures

12.2.1 Signaling link activation

12.2.1.1 In the absence of failures, a link set contains...
All Signaling links in the link set shall be active in the absence of failures.

12.2.1.2 When a decision is taken to activate an...
Shall apply.

12.2.2 Signaling link restoration
Shall apply.

12.2.3 Signaling link deactivation
Shall apply.

12.2.4 Link set activation
Shall apply.

12.2.4.1 Link set normal activation
Shall apply.

12.2.4.2 Link set emergency restart
Shall apply.

12.2.4.3 Time out values
Shall apply.

12.3 Signaling link management procedures based on automatic allocation of Signaling terminal
Shall not apply.
12.4 Signaling link management procedures based on automatic allocation of Signaling data links and Signaling terminals
Shall not apply.

12.5 Automatic allocation of Signaling terminals
According to 4.4 of ETS 300 008, these procedures shall not apply.

12.6 Automatic allocation of Signaling data links
Shall not apply.

12.7 Different Signaling link management procedures at the two ends of a link set
Shall apply.

Note: The basic set of Signaling management functions shall apply.

13 Signaling route management

13.1 General
Shall apply.
National options shall not apply.

13.2 Transfer prohibited

13.2.1 The transfer-prohibited procedure is performed...
Shall apply.

13.2.2 A transfer-prohibited message relating to...
   i) Shall apply.
   ii) Shall apply.
   iii) Shall apply.
   iv) Shall not apply.
   v) Shall not apply.

Note: Signaling point restart procedure shall not apply.

13.2.3 When a Signaling point receives a transfer-prohibited...
Shall apply.

13.2.4 In some circumstances it may happen that...
Shall apply.

13.3 Transfer allowed

13.3.1 The transfer-allowed procedure is performed...
Shall apply.

13.3.2 A transfer-allowed message relating to...
Shall apply.

13.3.3 When a Signaling point receives a...
Shall apply.
13.3.4 In some circumstances it may happen...
  Shall apply.

13.4 Transfer-restricted (National option)
  Shall not apply.

13.5 Signaling-route-set-test

13.5.1 The Signaling-route-set-test procedure is...
  Shall apply.

13.5.2 A Signaling-route-set-test message is sent from...
  Shall apply.
  The transfer-restricted procedure shall not apply.

13.5.3 A Signaling-route-set-test message is sent to...
  Shall apply.

13.5.4 At the reception of a Signaling-route-set-test...
  Shall apply.
  The transfer-restricted procedure shall not apply.

13.5.5 At the reception of the transfer-prohibited...
  Shall apply.

13.6 Transfer controlled (International network)
  Shall apply for both MT ADP-I and MT ADP-N.

13.7 Transfer controlled (National option with congestion priorities)
  Shall not apply.

13.8 Transfer controlled (National option without congestion priorities)
  Shall not apply.

13.9 Signaling-route-set-congestion-test (National option)
  Shall not apply.

14  Common characteristic of message signal unit formats

14.1 General
  Shall apply.

14.2 Service information octet
  Shall apply.

14.2.1 Service indicator
  Shall apply.
  National options shall not apply.

14.2.2 Subservice field
  Shall apply.
Additional User Parts and message priorities are not used.

14.3 Label
   Shall apply.

15 Formats and codes of Signaling network management messages

15.1 General

15.1.1 The Signaling network management messages...
   Shall apply.

15.1.2 The Signaling information field consist of...
   Shall apply.

15.2 Label
   The standard label structure shall apply.

15.3 Heading code (H0)
   Shall apply.

The applicable Signaling network management messages are shown in Table 1/Q.704.

15.4 Changeover message
   §§ 15.4.1-15.4.3 shall apply.

15.5 Changeback message
   §§ 15.5.1-15.5.4 shall apply.

15.6 Emergency changeover message
   §§ 15.6.1-15.6.3 shall apply.

15.7 Transfer-prohibited message
   §§ 15.7.1-15.7.4 shall apply.

15.8 Transfer-allowed message
   §§ 15.8.1-15.8.3 shall apply.

15.9 Transfer-restricted message
   Shall not apply.

15.10 Signaling-route-set-test message
   §§ 15.10.1-15.10.3 shall apply.

15.11 Management inhibit message
   §§ 15.11.1-15.11.3 shall apply.

15.12 Traffic restart allowed message
   Shall not apply.

Note: Signaling point restart procedure shall not apply.
15.13 Signaling-data-link-connection-order message
Shall not apply.

Note: Automatic allocation of Signaling data link shall not apply.

15.14 Signaling-data-link-connection-acknowledgement message
Shall not apply.

Note: Automatic allocation of Signaling data link shall not apply.

15.15 Transfer controlled message
Shall apply.

Note: Multiple congestion states shall not apply.

15.16 Signaling-route-set-congestion-test message (National option)
Shall not apply.

15.17 User part unavailable message
Shall not apply.

16 State transition diagrams
Shall apply with regard to the relevant level 3 functions.

16.8 Timers and timer values

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<tbody>
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<td>T1</td>
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<td>&quot;Delay to avoid message mis-sequencing on changeover&quot;</td>
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<td>T23</td>
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<td>&quot;Remote inhibit timer&quot;</td>
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Table 1/Q.704
Heading code allocation of Signaling network management messages
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<tr>
<th>Abbreviation</th>
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<td>CHM</td>
<td>Changeover and changeback messages</td>
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<tr>
<td>ECM</td>
<td>Emergency changeover messages</td>
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<tr>
<td>FCM</td>
<td>Signaling traffic flow control message</td>
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<tr>
<td>TFM</td>
<td>Transfer prohibited transfer allowed transfer restricted messages</td>
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<tr>
<td>RSM</td>
<td>Signaling-route-set-test message</td>
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<tr>
<td>MIM</td>
<td>Management inhibit messages</td>
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</table>

### Changeover and changeback messages
- **COO**: Changeover order signal
- **COA**: Changeover acknowledgement signal
- **CBD**: Changeback declaration signal
- **CBA**: Changeback acknowledgement signal

### Emergency changeover messages
- **ECO**: Emergency changeover order signal
- **ECA**: Emergency changeover acknowledgement signal

### Signaling traffic flow control message
- **TFC**: Transfer controlled signal

### Transfer prohibited transfer allowed transfer restricted messages
- **TFP**: Transfer-prohibited signal
- **TFA**: Transfer-allowed signal

### Signaling-route-set-test message
- **RST**: Signaling-route-set test signal

### Management inhibit messages
- **LIN**: Link inhibit signal
- **LUN**: Link uninhibit signal
- **LIA**: Link inhibit acknowledgement signal
- **LUA**: Link uninhibit acknowledgement signal
- **LID**: Link inhibit denied signal
- **LFU**: Link forced uninhibit signal
- **LLT**: Link local inhibit test signal
- **LRT**: Link remote inhibit test signal
CHAPTER 6
Signaling network structure (Q.705)
Signaling network structure (Q.705)
The Recommendation shall apply completely
CHAPTER 7
Message Transfer Part Signaling Performance (Q.706)
Message Transfer Part Signaling Performance (Q.706)
The Recommendation shall apply completely
CHAPTER 8

Testing and maintenance requirements (Q.707)
Testing and maintenance requirements (Q.707)

1 General
   Shall apply.

2 Testing

2.1 Signaling data link test
   Shall apply.

2.2 Signaling link test
   Shall apply.

3 Fault location
   Shall apply.

4 Signaling network monitoring
   Shall apply.

Note: All the mandatory measurements described in Recommendations Q.791 are applicable.
5 Formats and codes of Signaling network testing and maintenance messages

5.1 General
    Shall apply.

5.2 Label
    Shall apply.

5.3 Heading code H0
    Shall apply.

5.4 Signaling link test messages
    Shall apply.

5.5 Time-out values and tolerances
    T1\(^1\) 4-12 s “Supervision timer for Signaling link test acknowledgement message”

6 State transition diagrams
    Shall apply with regard to the relevant functions.

\(^1\) This value must be equal or greater than T6 of Q.703.

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\(^1\) This value must be equal or greater than T6 of Q.703.