



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.2220

(12/2002)

SERIES Q: SWITCHING AND SIGNALLING

Broadband ISDN – Signalling network protocols

Transport-Independent Signalling Connection Control Part (TI-SCCP)

ITU-T Recommendation Q.2220

ITU-T Q-SERIES RECOMMENDATIONS
SWITCHING AND SIGNALLING

SIGNALLING IN THE INTERNATIONAL MANUAL SERVICE	Q.1–Q.3
INTERNATIONAL AUTOMATIC AND SEMI-AUTOMATIC WORKING	Q.4–Q.59
FUNCTIONS AND INFORMATION FLOWS FOR SERVICES IN THE ISDN	Q.60–Q.99
CLAUSES APPLICABLE TO ITU-T STANDARD SYSTEMS	Q.100–Q.119
SPECIFICATIONS OF SIGNALLING SYSTEM No. 4	Q.120–Q.139
SPECIFICATIONS OF SIGNALLING SYSTEM No. 5	Q.140–Q.199
SPECIFICATIONS OF SIGNALLING SYSTEM No. 6	Q.250–Q.309
SPECIFICATIONS OF SIGNALLING SYSTEM R1	Q.310–Q.399
SPECIFICATIONS OF SIGNALLING SYSTEM R2	Q.400–Q.499
DIGITAL EXCHANGES	Q.500–Q.599
INTERWORKING OF SIGNALLING SYSTEMS	Q.600–Q.699
SPECIFICATIONS OF SIGNALLING SYSTEM No. 7	Q.700–Q.799
Q3 INTERFACE	Q.800–Q.849
DIGITAL SUBSCRIBER SIGNALLING SYSTEM No. 1	Q.850–Q.999
PUBLIC LAND MOBILE NETWORK	Q.1000–Q.1099
INTERWORKING WITH SATELLITE MOBILE SYSTEMS	Q.1100–Q.1199
INTELLIGENT NETWORK	Q.1200–Q.1699
SIGNALLING REQUIREMENTS AND PROTOCOLS FOR IMT-2000	Q.1700–Q.1799
SPECIFICATIONS OF SIGNALLING RELATED TO BEARER INDEPENDENT CALL CONTROL (BICC)	Q.1900–Q.1999
BROADBAND ISDN	Q.2000–Q.2999
General aspects	Q.2000–Q.2099
Signalling ATM adaptation layer (SAAL)	Q.2100–Q.2199
Signalling network protocols	Q.2200–Q.2299
Common aspects of B-ISDN application protocols for access signalling and network signalling and interworking	Q.2600–Q.2699
B-ISDN application protocols for the network signalling	Q.2700–Q.2899
B-ISDN application protocols for access signalling	Q.2900–Q.2999

For further details, please refer to the list of ITU-T Recommendations.

ITU-T Recommendation Q.2220

Transport-Independent Signalling Connection Control Part (TI-SCCP)

Summary

ITU-T Recs Q.711, Q.712, Q.713, Q.714, Q.715 and Q.716 define the services of the Signalling Connection Control Part (SCCP). The SCCP provides, above the signalling transport network (or networks) connection-oriented, connectionless, routing, and management services. ITU-T Rec. Q.711 defines the services provided; ITU-T Rec. Q.714 describes the procedures performed by the SCCP. These procedures make use of the messages and information elements defined in ITU-T Rec. Q.712, whose formatting and coding aspects are specified in ITU-T Rec. Q.713. ITU-T Rec. Q.715 is a guide for the SCCP and ITU-T Rec. Q.716 defines SCCP performance.

This Recommendation defines the Transport-Independent Signalling Connection Control Part (TI-SCCP), which consists of a modification to SCCP that allows it to operate on various signalling transport networks. In addition to the MTP3 and MTP3b networks, TI-SCCP can operate on SSCOP and SSCOPMCE based networks as well as on IP-networks by utilizing the transport protocol defined in RFCs 2960 and 3309.

The independence of the particular signalling transport technology is achieved by basing the TI-SCCP on the Generic Signalling Transport Service (ITU-T Rec. Q.2150.0) and deploying one of the Signalling Transport Converters specified in ITU-T Recs Q.2150.1, Q.2150.2, or Q.2150.3.

Source

ITU-T Recommendation Q.2220 was approved on 29 December 2002 by ITU-T Study Group 11 (2001-2004) under the ITU-T Resolution A.8 procedure.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

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

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

© ITU 2004

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

CONTENTS

Page

1	Scope	1
2	References.....	2
2.1	Normative references.....	2
2.2	Informative references.....	2
3	Definitions	3
4	Abbreviations.....	3
5	Signalling network architecture.....	6
5.1	General architecture.....	6
5.2	Interworking of TI-SCCP with SCCP	7
6	Exceptions to ITU-T Rec. Q.711	8
6.1	General	8
6.2	Scope and field of application	9
6.3	Primitives.....	9
6.4	Removal of the embedded service.....	10
6.5	Reason for return	10
6.6	SCCP management.....	10
6.7	Definition of the lower boundary of the SCCP	11
7	Exceptions to ITU-T Rec. Q.712.....	12
7.1	Signalling connection control part messages	12
7.2	SCCP message parameters	13
7.3	Inclusion of fields in the messages.....	13
8	Exceptions to ITU-T Rec. Q.713	13
8.1	Introduction	13
8.2	Coding of the general parts.....	16
8.3	SCCP parameters.....	17
8.4	SCCP messages and codes	17
8.5	SCCP management messages and codes.....	19
8.6	Mapping for cause parameter values.....	19
9	Exceptions to ITU-T Rec. Q.714.....	19
9.1	General	19
9.2	General characteristics of signalling connection control procedures.....	20
9.3	Addressing and routing.....	23
9.4	Connection-oriented procedures.....	40
9.5	Connectionless procedures	41

	Page
9.6 SCCP management procedures	43
9.7 Annex C – State Transition Diagrams (STD) for the signalling connection control part of Signalling Systems No. 7.....	57
9.8 Annex D – State Transition Diagrams (STD) for SCCP management control.....	57
10 Exceptions to ITU-T Rec. Q.715.....	57
Appendix I – Aspects of the fully meshed Signalling Transport Network.....	57
I.1 GST supported by the Signalling Transport Converter on MTP and MTP3b	57
I.2 GST supported by the Signalling Transport Converter on SSCOP and SSCOPMCE	57
I.3 GST supported by the Signalling Transport Converter on SCTP	57
Appendix II – Differences between the SCCP and TI-SCCP operating over ITU-T Rec. Q.2150.1	58

ITU-T Recommendation Q.2220

Transport-Independent Signalling Connection Control Part (TI-SCCP)

1 Scope

This Recommendation describes the adaptation of the narrow-band Signalling System No. 7 Signalling Connection Control Part (SCCP) for the capability to deploy the Generic Signalling Transport Service defined in ITU-T Rec. Q.2150.0.

This Recommendation is written as a set of exceptions to ITU-T Recs Q.711, Q.712, Q.713, Q.714 and Q.715 defining the SCCP. The exceptions to certain clauses of text from the SCCP Recommendations are indicated by using revision marks. (Deleted text is shown using strikeouts, and added text is shown underlined.)

The protocol defined by this Recommendation is the Signalling Connection Control Part (SCCP) protocol to be used between "Serving Nodes". This protocol is called the "Transport-Independent Signalling Connection Control Part" (TI-SCCP).

The scope of this Recommendation is shown in Figure 1-1.

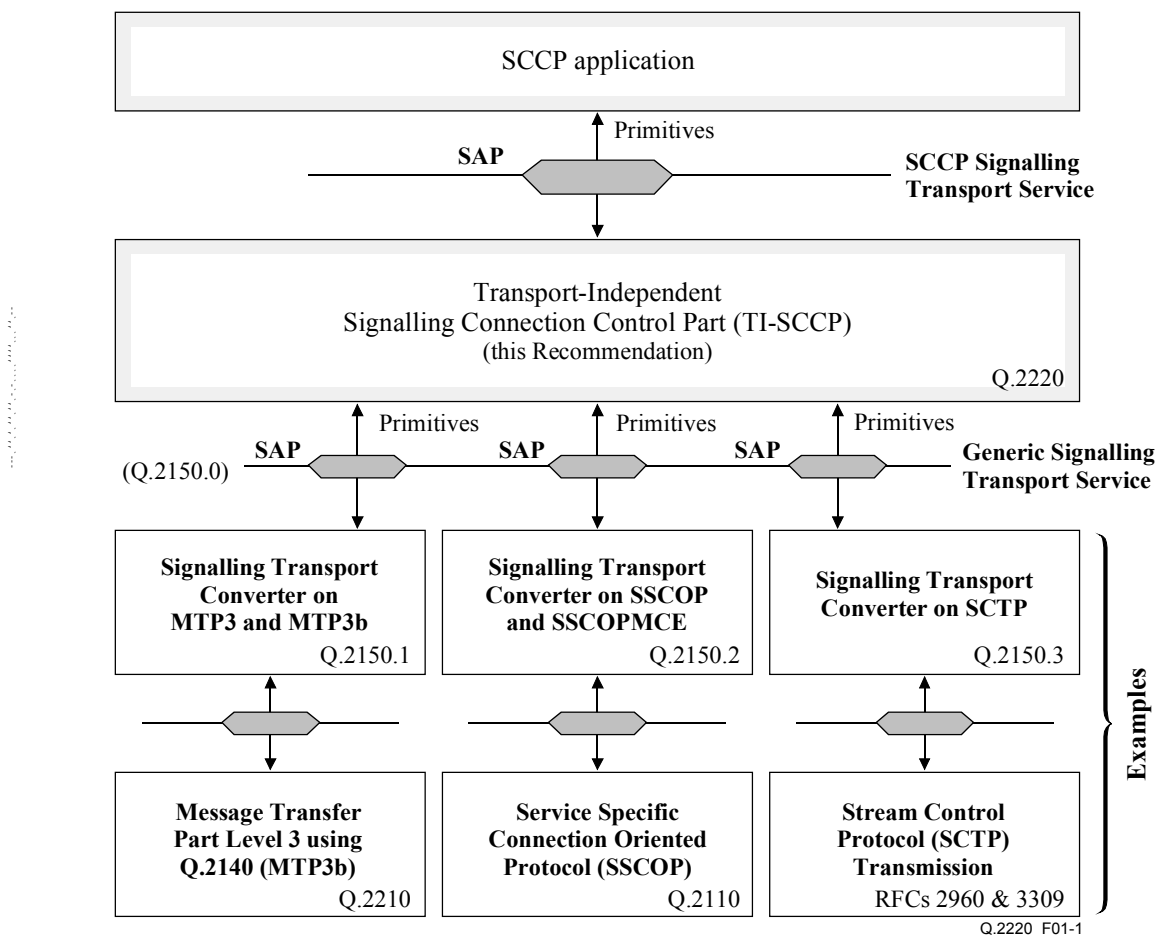


Figure 1-1/Q.2220 – Scope of this Recommendation

2 References

2.1 Normative references

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [1] ITU-T Recommendation Q.711 (2001), *Functional description of the signalling connection control part*.
- [2] ITU-T Recommendation Q.712 (1996), *Definition and function of signalling connection control part messages*.
- [3] ITU-T Recommendation Q.713 (2001), *Signalling connection control part formats and codes*.
- [4] ITU-T Recommendation Q.714 (2001), *Signalling connection control part procedures*.
- [5] ITU-T Recommendation Q.715 (2002), *Signalling connection control part user guide*.
- [6] ITU-T Recommendation Q.2150.0 (2001), *Generic signalling transport service*.

2.2 Informative references

The following ITU-T Recommendations and other documents contain information that may be useful to understanding the usage of this Recommendation. There are no additional provisions of this Recommendation derived from these documents.

- [B1] ITU-T Recommendation Q.2150.1 (2001), *Signalling transport converter on MTP3 and MTP3b*.
- [B2] ITU-T Recommendation Q.2150.2 (2001), *Signalling transport converter on SSCOP and SSCOPMCE*.
- [B3] ITU-T Recommendation Q.2150.3 (2002), *Signalling transport converter on SCTP*.
- [B4] ITU-T Recommendation Q.2210 (1996), *Message transfer part level 3 functions and messages using the services of ITU-T Recommendation Q.2140*.
- [B5] ITU-T Recommendation Q.2110 (1994), *B-ISDN ATM adaptation layer – Service specific connection oriented protocol (SSCOP)*.
- [B6] ITU-T Recommendation Q.2111 (1999), *B-ISDN ATM adaptation layer – Service specific connection oriented protocol in a multi-link and connectionless environment (SSCOPMCE)*.
- [B7] ITU-T Recommendation Q.701 (1993), *Functional description of the message transfer part (MTP) of Signalling System No. 7*.
- [B8] ITU-T Recommendation Q.704 (1996), *Signalling network functions and messages*.
- [B9] ITU-T Recommendation Q.707 (1988), *Testing and maintenance*.
- [B10] IETF RFC 2960 (2000), *Stream Control Transmission Protocol*.

3 Definitions

There are no further definitions required other than those contained in the normative references (see 2.1).

4 Abbreviations

This Recommendation uses the following abbreviations:

AAL	ATM Adaptation Layer
AK	Data acknowledgement
ATM	Asynchronous Transfer Mode
BICC	Bearer Independent Call Control
B-ISDN	Broadband-Integrated Services Digital Network
B-ISUP	Broadband ISDN User Part (of SS No. 7)
CC	Connection Confirm
CIC	Call Instance Code
CL	Congestion Level
CL _{CL}	CL for connectionless services
CL _{CO}	CL for connection-oriented services
CL _{mc}	Congestion Level "maximum congestion"
CL _{nc}	Congestion Level "no congestion"
CL _{st}	Congestion Level "step"
CR	Connection Request
CREF	Connection Refused
DPC	Destination Point Code
DT1	Data Form 1
DT2	Data Form 2
EA	Expedited Data Acknowledgement
ED	Expedited Data
ERR	Protocol Data Unit Error
ES	Encoding Scheme
F	Fixed Length
GST	Generic Signalling Transport
GSTS	Generic Signalling Transport Service
GST-SAP	Service Access Point to the Generic Signalling Transport Service
GT	Global Title
GTAI	Global Title Address Information
GTI	Global Title Indicator
GTT	Global Title Translation

ISDN	Integrated Services Digital Network
ISUP	Integrated Services User Part (of SS No. 7)
IT	Inactivity Test
IWF	Interworking Function
L3	Level 3
LSB	Least Significant Bit
LUDT	Long Unitdata
LUDTS	Long Unitdata Service
M	Mandatory
MSB	Most Significant Bit
MSG	Message
MTP	Message Transfer Part
MTP3	Message Transfer Part level 3 (Narrow-band)
MTP3b	Message Transfer Part level 3 (Broadband)
MTP-SAP	SAP to access the services provided by MTP
NAI	Nature of Address Indicator
NI	Network Indicator
NNI	Network Node Interface
NP	Numbering Plan
NPCI	Network Protocol Control Information
NPDU	Network Protocol Data Unit
NSDU	Network Service Data Unit
NSP	Network Service Part
O	Optional
OPC	Originating Point Code
PC	Point Code
PDU	Protocol Data Unit
RI	Routing Indicator
RIL	Restricted Importance Level
RL	Restriction Level
RLC	Release Complete
RL _{CL}	RL for connectionless services
RL _{CO}	RL for connection-oriented services
RLSD	Released
RSC	Reset Confirm
RSL	Restriction Sublevel
RSL _{CL}	RSL for connectionless services

RSL _{CO}	RSL for connection-oriented services
RSR	Reset Request
SAAL	Signalling ATM Adaptation Layer
SAP	Service Access Point
SCCP	Signalling Connection Control Part
SCCP-SAP	SAP to access the SCCP services
SCLC	SCCP Connectionless Control
SCMG	SCCP Management+
SCOC	SCCP Connection-Oriented Control
SCRC	SCCP Routing Control
SCTP	Stream Control Transmission Protocol
SDU	Service Data Unit
SI	Service Indicator
SIO	Service Information Octet
SLC	Signalling Link Code
SLS	Signalling Link Selection
SOG	Subsystem-Out-Of-Service-Grant
SOR	Subsystem-Out-Of-Service-Request
SS	SubSystem
SS No. 7	ITU-T Signalling System No. 7
SSA	Subsystem-Allowed
SSC	Subsystem Congested
SSCF	Service Specific Coordination Function
SSCOP	Service Specific Connection-Oriented Protocol
SSCOPMCE	SSCOP in a multi-link or Connectionless Environment
SSN	SubSystem Number
SSP	Subsystem-Prohibited
SSPC	SubSystem-Prohibited Control
SST	Subsystem-Status-Test
STC	Signalling Transport Converter
STP	Signalling Transfer Point
TI-SCCP	Transport-Independent SCCP
TT	Translation Type
UDT	Unitdata
UDTS	Unitdata Service
UP	User Part (of SS No. 7)
V	Variable Length

XUDT	Extended Unitdata
XUDTS	Extended Unitdata Service

5 Signalling network architecture

5.1 General architecture

The general principle of the architecture of TI-SCCP is shown in Figure 5-1. It depicts a TI-SCCP with ten signalling relations, each accessed via a GST-SAP and a Signalling Transport Converter instance. Three different Signalling Transport Technologies are used with three different types of Signalling Transport Converters.

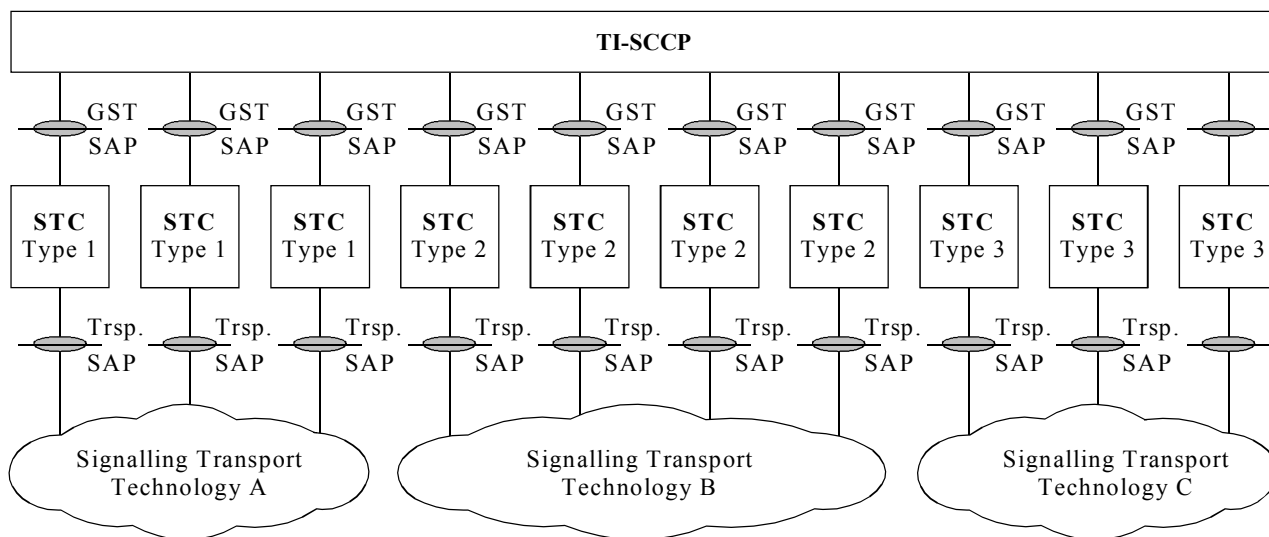
NOTE 1 – Currently, three different types of Signalling Transport Converters are defined:

- Signalling Transport Converter on MTP3 and MTP3b (see ITU-T Rec. Q.2150.1 [B1]);
- Signalling Transport Converter on SSCOP and SSCOPMCE (see ITU-T Rec. Q.2150.2 [B2]); and
- Signalling Transport Converter on SCTP (see ITU-T Rec. Q.2150.3 [B3]).

A message to be transmitted is passed with a TRANSFER.request primitive (see 6.7) via a particular GST-SAP to a Signalling Transport Converter (STC) instance. The GST-SAP is associated with a particular signalling relation. The STC entity forwards the message to its peer.

The STC instance of a certain type operates over a specific Signalling Transport Technology and is configured to transport data to a single destination STC.

Upon receipt of a message, the STC entity at the destination passes the message with a TRANSFER.indication primitive via a particular GST-SAP to the TI-SCCP. This SAP identifies to the TI-SCCP the signalling relation to the TI-SCCP and, thus, identifies also the origin of the message.



Q.2220_F05-1

Figure 5-1/Q.2220 – Selecting a SAP to a Signalling Transport Converter entity to reach a destination independent of the Signalling Transport Technology

The status primitives, i.e., START-INFO.indication, IN-SERVICE.indication, OUT-OF-SERVICE.indication, and CONGESTION.indication, are also passed via a specific GST-SAP and, thus, by that indicate which signalling relation indicated its status.

The signalling transport network from the point of view of a TI-SCCP is a fully meshed network (see Appendix I).

NOTE 2 – Traditional SCCP networks are fully meshed via the relaying mechanism at the MTP3 layer.

Figure 5-2 shows an application of this principle by depicting a signalling network that deploys two Signalling Transport Technologies. This signalling network is fully meshed, i.e., 10 signalling relations are used. TI-SCCP "E" is attached to STCs of a single type, i.e., this TI-SCCP can be reached only by utilizing a particular Signalling Transport Technology; the other TI-SCCPs can be reached by either Signalling Transport Technology.

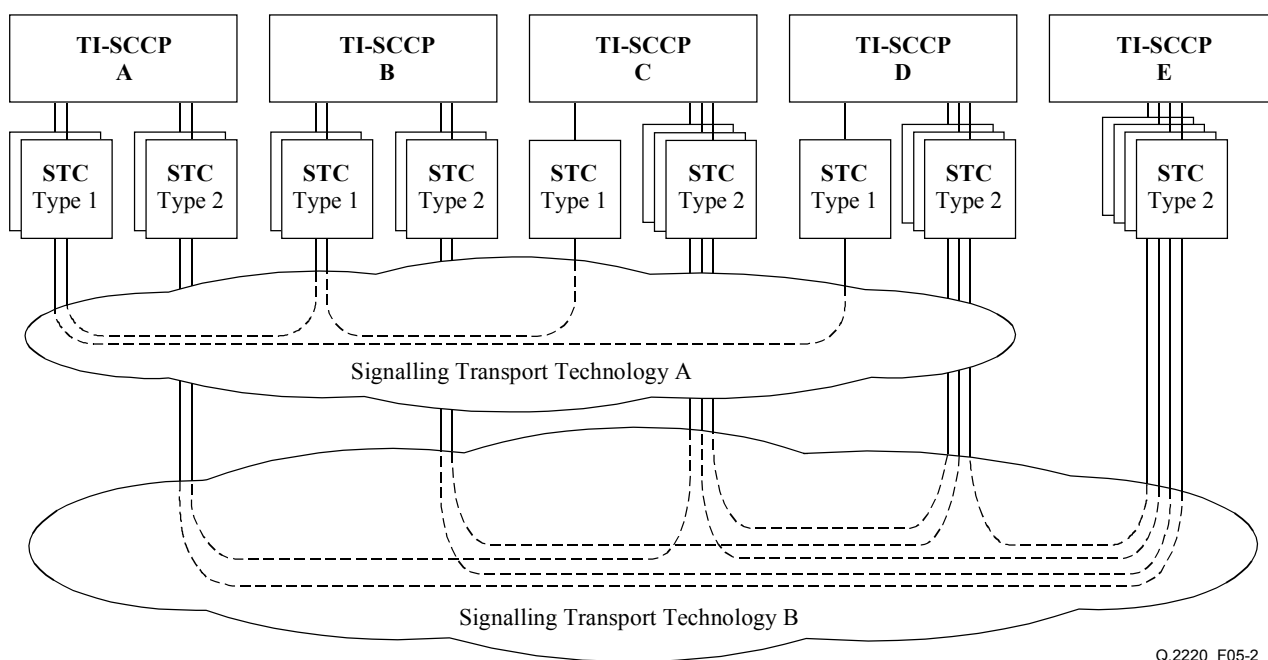


Figure 5-2/Q.2220 – Selecting a SAP to a Signalling Transport Converter entity to reach a destination independent of the Signalling Transport Technology

5.2 Interworking of TI-SCCP with SCCP

Figure 5-3 shows the interworking scenario.

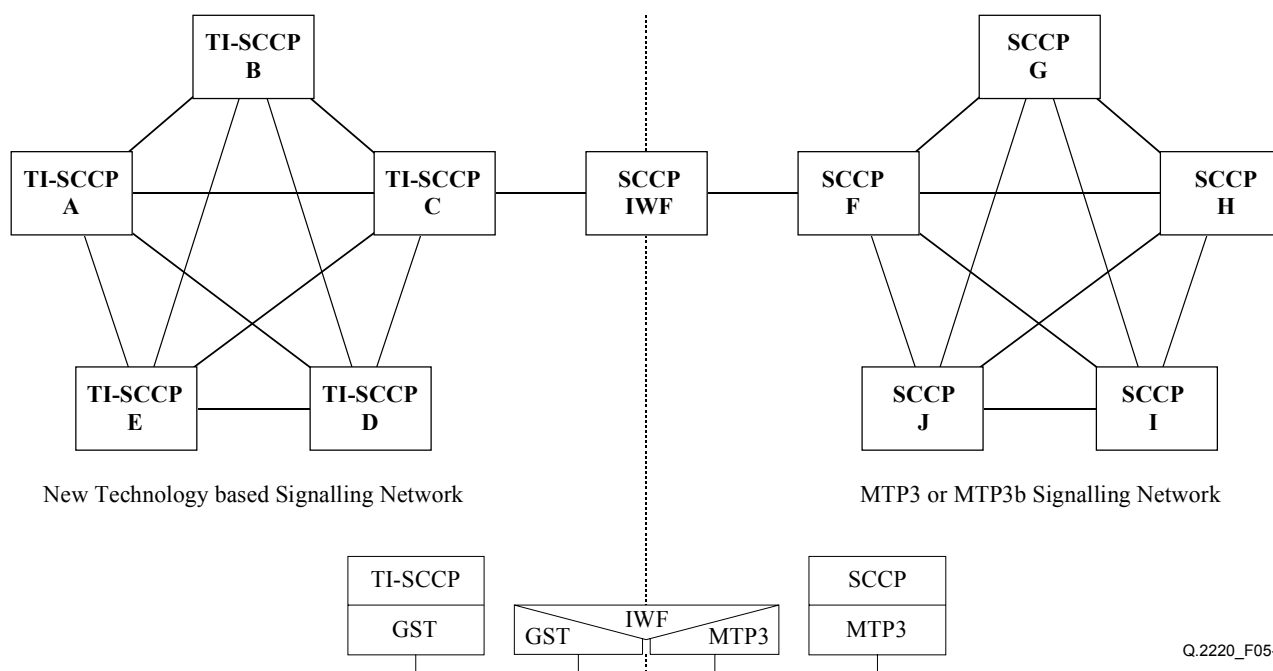


Figure 5-3/Q.2220 – Scenario for interworking between TI-SCCP and SCCP

NOTE – The interworking function ("SCCP IWF") may be collocated with TI-SCCP "C", or SCCP "F", or both.

5.2.1 Messages travelling from an SCCP network towards a TI-SCCP network

Messages arriving from an SCCP node get delivered to the SCCP IWF by an MTP-TRANSFER.indication primitive. The parameter quadruple "OPC, DCP, SI, NI" indicates the signalling relation. In addition, an SLS value is indicated.

At the SCCP IWF the following actions are performed:

- 1) A UDT message is converted into an XUDT or LUDT message;
NOTE – A UDTS message is never received.
- 2) A sequence control parameter is appended to XUDT, XUDTS, LUDT, and LUDTS messages;
- 3) A regular Global Translation (see 2.4/Q.714 in 9.3/Q.2220) is required as the message enters another signalling network with its own SPC domain;
- 4) The SLS value is put into the sequence control parameter of the XUDT, XUDTS, LUDT, and LUDTS messages (see 3/Q.713 and 4/Q.713 in 8.3/Q.2220 and 8.4/Q.2220); and
- 5) The message is transmitted with the TRANSMIT.request primitive via the appropriate GST-SAP.

5.2.2 Messages travelling from a TI-SCCP network towards an SCCP network

A TRANSFER.indication primitive via a GST-SAP delivers messages arriving from a TI-SCCP node to the SCCP IWF. The identity of the GST-SAP indicates the signalling relation.

At the SCCP IWF the following actions are performed:

- 1) A regular Global Translation (see 2.4/Q.714 in 9.3) is required as the message enters another signalling network with its own SPC domain; and
- 2) The message is transmitted with the MTP-TRANSMIT.request primitive together with the parameters taken from the result of the Global Translation and the SLS value removed.

6 Exceptions to ITU-T Rec. Q.711

The specifications in ITU-T Rec. Q.711 apply with the following exceptions:

6.1 General

The SCCP defined in ITU-T Recs Q.711 to Q.716 are based on the MTP3 signalling transport service whereas the Transport-Independent SCCP defined in this Recommendation is based on the Generic Signalling Transport Service (GSTS) defined in ITU-T Rec. Q.2150.0; hence:

- a) Any reference – in the text of the whole Recommendation – to the service or lower boundary conditions including references to ITU-T Recs Q.701 to Q.707, and/or in ITU-T Rec. Q.2210 shall be replaced with a reference to ITU-T Rec. Q.2150.0.
- b) Any reference to "MTP" is replaced by a reference to "GST", the Generic Signalling Transport.
NOTE – This includes figures such as Figures 1/Q.711 and 2/Q.711.
- c) Any reference to "MTP-SAP" is replaced by a reference to "GST-SAP", the Service Access Point to the Generic Signalling Transport Service.

Further specific exceptions are specified in the following subclauses.

6.2 Scope and field of application

Replace the 5th paragraph in clause 1/Q.711 with:

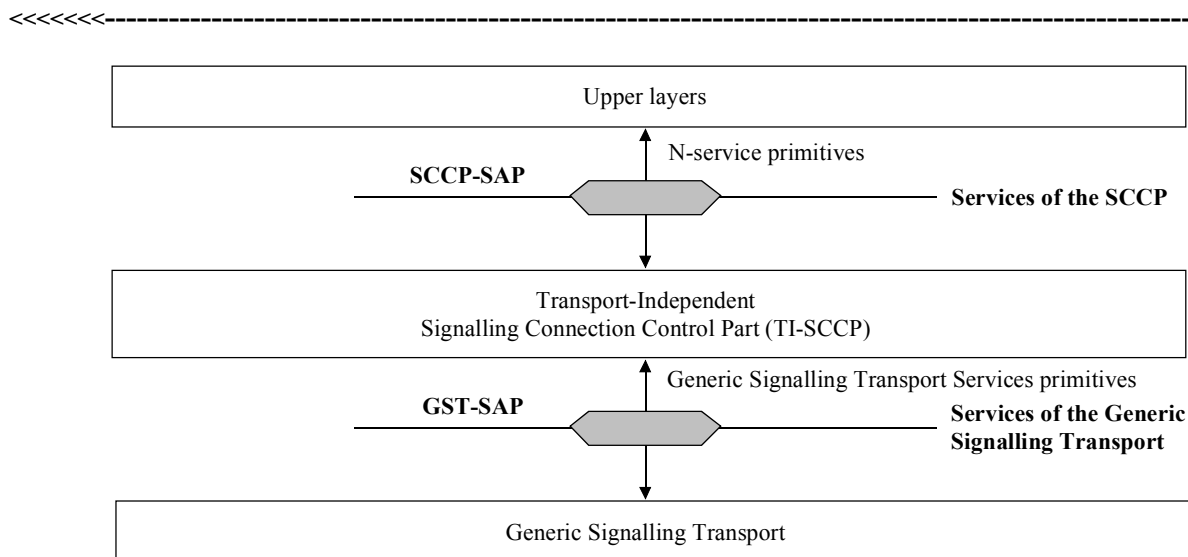
-----<<<<<<-----
The SCCP making use of the services of the GST-MTP, as specified in ITU-T Rec. Q.2150.0 Q.2210, provides the connectionless network service as specified in this Recommendation. A connection-oriented network service can only use the services which are common to ITU-T Recs Q.2150.0-Q.2210 and Q.704 for the MTP. In particular, the connection-oriented network service shall use a maximum PDU length that does not exceed 272 octets minus the size of the MTP label.
----->>>>>>-----

After the last paragraph and Figure 1/Q.711 in clause 1/Q.711 add the following paragraph and Note:

-----<<<<<<-----
The Bearer Independent Call Control (BICC) signalling is independent of the underlying transport protocols by utilizing the Generic Signalling Transport Service (GSTS). Functions of the SCCP are however used for the transfer of ISUP Supplementary Services for BICC that are based on the Transaction Capability of Signalling System No. 7.
NOTE – The Transaction Capability of SS No. 7 itself is based on the services of SCCP.
----->>>>>>-----

6.3 Primitives

Replace Figure 3/Q.711 with the following figure:



Q.2220_F06-1(6.3)

Figure 6-1/Q.2220 – Service primitives

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

6.4 Removal of the embedded service

In 6.1.1.1.1/Q.711, replace the 5th paragraph with the two bullet items and the 6th paragraph with the following:

<<<<<<-----

For connection establishment there exists an ~~are two alternative boundaries between SCCP and SCCP user with different procedures:~~

- ~~– the "X.213-like" boundary that is described further in 6.1.1.2,~~
- ~~– the "ISUP-embedded" boundary that is described further in 6.1.1.3.~~

~~The "X.213-like" boundary that requires that establishment procedures are performed by SCCP while in the case of "ISUP-embedded" boundary the ISUP provides the routing of the request for the set-up of a connection section.~~

NOTE – The "ISUP-embedded" boundary is not supported.

----->>>>>>

Remove 6.1.1.3/Q.711 completely, including Tables 7/Q.711, 8/Q.711, and 9/Q.711.

6.5 Reason for return

Replace the 6th bullet item in the second paragraph of 6.2.2.2.4/Q.711 with:

<<<<<<-----

- GST out of service ~~MTP failure;~~

----->>>>>>

6.6 SCCP management

In Table 14/Q.711, replace the last row with the following:

<<<<<<-----

N-PCSTATE	Indication	Affected signalling point (together with the <u>GSTMTP-SAP instance</u>) Signalling point status Restricted importance level Remote SCCP status <u>Affected SCCP service</u>
-----------	------------	---

----->>>>>>

Add the following new subclause:

<<<<<<-----

6.3.2.2.8 Affected SCCP service

The optional parameter "Affected SCCP service" indicates which of the SCCP services are affected by the restriction of traffic indicated in the "Restricted importance level" parameter.

"Affected SCCP service" may assume the following values:

- SCCP connectionless and connection-oriented services;
- SCCP connectionless service;
- SCCP connection-oriented service.

When this parameter is not provided, it is assumed that both connectionless and connection-oriented services are affected.

In Table 17/Q.711, add as a new penultimate row (before the Notes) the following:

<u>Affected SCCP service</u>	<u>O</u>
------------------------------	----------

In Table 17/Q.711, replace the last row (notes) with the following:

c ⁵)	Present if this is the result of ~~an MTP STATUS reporting user part unavailability or the~~ reception of an SSC message reporting a change of restricted importance level, or a time-out (T _{con}) to detect the abatement of SCCP congestion.
c ⁶)	Present if this is the result of a change in the restricted importance level of the affected signalling point or remote SCCP.

6.7 Definition of the lower boundary of the SCCP

Replace clause 7/Q.711 with:

7 Definition of the lower boundary of the SCCP

The Generic Signalling Transport Service is specified in ITU-T Rec. Q.2150.0. For convenience, a summary of the primitives for accessing the service is reproduced in Table 7-1/Q.2220. In the event of any difference between this table and the definitions in ITU-T Rec. Q.2150.0, the definitions in ITU-T Rec. Q.2150.0 take precedence.

**Table 7-1/Q.2220 – Primitives and parameters of
the Generic Signalling Transport Sublayer**

Primitive generic name	Type			
	Request	Indication	Response	Confirm
START-INFO	–	Max_Length CIC_Control	–	–
IN-SERVICE	–	Level	–	–
OUT-OF-SERVICE	–	(Note 1)	–	–
CONGESTION	–	Level	–	–
TRANSFER	Sequence Control STC User Data Priority (Note 2)	STC User Data Priority (Note 2)	–	–
– This primitive is not defined. NOTE 1 – This primitive has no parameters. NOTE 2 – This parameter is a national option.				

On the establishment of a Signalling Transport Converter entity and the associated Signalling Transport Converter user entity, for example at power up, the initial conditions are the same as if an OUT-OF-SERVICE.indication primitive had been conveyed across the SAP. Also at this time the START-INFO.indication is sent to the TI-SCCP.

NOTE – The procedures for the primitives IN-SERVICE.indication, OUT-OF-SERVICE.indication, and CONGESTION.indication are specified for traffic limitations (see 2.6/Q.714 in 9.3/Q.2220), for connectionless data transfer (see 4.1/Q.714 in 9.5/Q.2220), and for SCCP management (see clause 5/Q.714 in 9.6/Q.2220). The procedures for the primitives TRANSFER.request and TRANSFER.indication are specified for the data transfer between peer TI-SCCP entities (in 1.5/Q.714 in 9.2/Q.2220). The "STC User Data" parameter in these primitives carry a complete message (message formats are specified in clauses 4 and 5/Q.713 in 8/Q.2220); the "sequence control" parameter conveys the SLS value to allow the lower layers to perform signalling link selection (in 1.5/Q.714 in 9.2/Q.2220).

7 Exceptions to ITU-T Rec. Q.712

The specifications in ITU-T Rec. Q.712 apply with the following exceptions:

7.1 Signalling connection control part messages

Replace the specification labelled "1.25" with:

1.25 long unitdata (LUDT): A *Long Unitdata* message is used by the SCCP to send data (along with optional parameters) in a connectionless mode. When the maximum length indication from the Generic Signalling Transport permits, MTP capabilities according to Recommendation Q.2210 are present, it allows sending of NSDU sizes up to 3952 octets without segmentation.

It is used in Connectionless protocol classes 0 and 1.

7.2 SCCP message parameters

Replace the specification labelled "2.20" with:

-----<<<<<<-----
2.20 segmentation: The "segmentation" parameter field is used in the XUDT, XUDTS, LUDT and LUDTS messages to indicate that a SCCP message has been segmented, or, in case of the LUDT(S), that it may undergo segmenting at an MTP/MTP-3b interworking node between the Generic Signalling Transport and an MTP3-based signalling transport. The parameter also contains all the information necessary to allow the correct reassembly of the message.
----->>>>>>-----

Replace the specification labelled "2.22" with:

-----<<<<<<-----
2.22 congestion level: The "SCCP congestion level" parameter is included in the *Subsystem Congested* message (SSC) to report the severity of the congestion referring to either the whole SCCP node or to the local SCCP. When local SCCP congestion is reported, the "Affected SCCP service" field in the congestion level parameter indicates whether the reported congestion level affects SCCP connectionless, connection-oriented or both services.
----->>>>>>-----

Replace the specification labelled "2.23" with:

-----<<<<<<-----
2.23 long data: The "long data" parameter is a "data" parameter with a two octet length indicator. It allows sending of up to 3968 ~~3952~~ octets in a single LUDT or LUDTS message when the maximum length indication from the Generic Signalling Transport permits sending of NSDU sizes up to 3968 octets ~~MTP-3b capabilities are present~~.
----->>>>>>-----

7.3 Inclusion of fields in the messages

In Table 1/Q.712, replace note b) at the bottom of the table with:

-----<<<<<<-----
b) The segmentation parameter must be included by the originating node, if interworking between the Generic Signalling Transport and an MTP3-based signalling transport ~~MTP/MTP-3b interworking~~ is expected.
----->>>>>>-----

8 Exceptions to ITU-T Rec. Q.713

The specifications in ITU-T Rec. Q.713 apply with the following exceptions:

8.1 Introduction

Replace the text in clause 1/Q.713 "General" with:

-----<<<<<<-----
This Recommendation specifies the SCCP messages formats and codes for the support of connection-oriented services, connectionless services and the management of SCCP.
----->>>>>>-----

