

SCCP ANSI/ITU/TTC/CHINESE ANSI 1996

STATEMENT OF COMPLIANCE

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Contents

1	General	1
1.1	Introduction	1
1.2	Terms	1
1.3	Concept	2
2	Compliance List	3
2.1	SCCP T1.112 ANSI - 1996	3
2.2	SCCP T1.116 ANSI - 1996	26
3	Notes	35
	Reference List	39





1 General

1.1 Introduction

This document contains a compliance statement of Ericsson SS7 portable SCCP ANSI component, see Reference [1] and Reference [2].

1.2 Terms

ANSI	American National Standards Institute.
CREF	Connection Refused.
DPC	Destination Point Code.
GT	Global Title.
ISDN	Integrated Services Digital Network.
ISDN-UP	Integrated Services Digital Network-User Part.
LU DT	Long Unitdata message.
LU DTS	Long Unitdata Service message.
MTP	Message Transfer Part.
NSDU	Network Service Data Unit.
PC	Point code.
SCCP	Signaling Connection Control Part.
SCMG	SCCP Management.
SMI	Subsystem Multiplicity Indicator.
SOG	Subsystem Out of service Grant.
SOR	Subsystem Out of service Request.
SS7	Signaling Subsystem No.7.
SSN	SubSystem Number.
UDT	Unitdata message.
UDTS	Unitdata Service message.



XUDT Extended Unitdata message.

XUDTS Extended Unitdata Service message.

1.3 Concept

The terms that are used are:

C Ericsson signaling Solution module complies with the specified paragraph in the standard.

N Ericsson signaling Solution module does not comply with the specified paragraph in the standard.

P Ericsson signaling Solution module complies partly with the specified paragraph in the standard.

- There is nothing to implement in the referred paragraph (always placed in column C).



2 Compliance List

2.1 SCCP T1.112 ANSI - 1996

2.1.1 T1.112.1, Functional Description of the signaling Connection Control Part

Table 1 Functional Description of the signaling Connection Control Part

References		C	N	P	Comments
1.	Scope, Purpose and Application	-			
1.1	General	-			
1.2	Objectives	-			
1.3	General Characteristic	-			
1.3.1	Technique of Description	-			
1.3.2	Primitives	-			
1.3.3	Peer-to-Peer Communication	-			
1.3.4	Contents of ANSI T1.112	-			
2.	Services Provided by The SCCP			X	Note 1
2.1	Connection-Oriented Services			X	Note 8
2.1.1	Temporary signaling Connections	-			
2.1.1.1	Description	X			
2.1.1.1.1	Connection Establishment Phase			X	Note 11
2.1.1.1.2	Data Transfer Phase			X	Note 1
2.1.1.1.3	Connection Release Phase	X			

Table 1 Functional Description of the signaling Connection Control Part

References		C	N	P	Comments
2.1.1.2	Network Service Primitives and Parameters	-			
2.1.1.2.1	Overview			X	Note 2
2.1.1.2.2	Connection Establishment Phase			X	Note 11
2.1.1.2.3	Data Transfer Phase			X	Note 1, Note 2
2.1.1.2.4	Release Phase	X			
2.1.1.2.5	Notice Service			X	Note 2, Note 36
2.1.2	Permanent signaling Connections	-			
2.1.2.1	Description		X		
2.1.2.2	Primitives and Parameters		X		
2.2	Connectionless Service	X			
2.2.1	Description	X			
2.2.2	Primitives and Parameters of the Connectionless Service	-			
2.2.2.1	Overview	X			
2.2.2.2	Parameters	-			
2.2.2.2.1	Address	X			
2.2.2.2.2	Quality of service parameter set	X			
2.2.2.2.3	Reason for Return	X			
2.2.2.2.4	User Data	X			
2.2.2.3	Primitives	-			
2.2.2.3.1	N-UNITDATA	X			
2.2.2.3.2	N-NOTICE	X			
2.3	SCCP Management	-			
2.3.1	Description			X	Note 3



Table 1 Functional Description of the signaling Connection Control Part

References		C	N	P	Comments
2.3.2	Primitives and Parameters of the SCCP Management	-			
2.3.2.1	Overview			X	Note 3, Note 23
2.3.2.2	Parameters	-			
2.3.2.2.1	Address	X			
2.3.2.2.2	Affected User			X	Note 3
2.3.2.2.3	User Status	X			
2.3.2.2.31A	A Traffic Mix		X		
2.3.2.2.4	Subsystem Multiplicity Indicator	X			Note 28
2.3.2.2.5	Affected DPC			X	Note 3, Note 24
2.3.2.2.6	Signaling Point Status			X	Note 3, Note 25
2.3.2.2.7	Confirm Status		X		
2.3.2.7	Primitives	-			
2.3.2.3.1	N-COORD		X		
2.3.2.3.2	N-STATE			X	Note 3, Note 23
2.3.2.3.3	N-TRAFFIC		X		
2.3.2.3.4	N-PCSTATE			X	Note 3
3.	Services Assumed from the MTP	-			
3.1	Description	X			
3.2	Primitives and Parameters	X			
3.2.1	MTP-TRANSFER	X			
3.2.2	MTP-PAUSE	X			
3.2.3	MTP-RESUME	X			
3.2.4	MTP-STATUS	X			
4.	Functions Provided by the SCCP	-			
4.1	Connection Oriented Functions	-			

Table 1 Functional Description of the signaling Connection Control Part

References		C	N	P	Comments
4.1.1	Functions for Temporary signaling Connections	-			
4.1.1.1	Connection Establishment Functions			X	Note 1
4.1.1.2	Data Transfer Phase Functions			X	Note 4
4.1.1.3	Release Phase Functions	X			
4.1.2	Functions for Permanent signaling Connections	-			
4.1.2.1	Connection Establishment Phase and Connection Release Phase		X		
4.1.2.2	Data Transfer Phase Functions		X		
4.2	Connectionless Service Functions	X			

2.1.2 T1.112.2, Definitions and Functions of SCCP Messages

Table 2 Definitions and Functions of SCCP Messages

References		C	N	P	Comments
1.	Scope, Purpose and Application	-			
2.	Signaling Connection Control Part Messages	-			Note 31 Note 32
2.1	Connection Confirm (CC)	X			Note 33
2.2	Connection Request (CR)	X			Note 33
2.3	Connection Refused (CREF)	X			



Table 2 Definitions and Functions of SCCP Messages

References		C	N	P	Comments
2.4	Data Acknowledgement (AK)		X		
2.5	Data Form 1 (DT1)	X			
2.6	Data Form 2 (DT2)		X		
2.7	Expedited Data (ED)		X		
2.8	Expedited Data Acknowledgement (EA)		X		
2.9	Inactivity Test (IT)	X			
2.10	Protocol Data Unit Error (ERR)	X			
2.11	Released (RLSD)	X			
2.12	Release Complete (RLC)	X			
2.13	Reset Confirmation (RSC)		X		
2.14	Reset Request (RSR)		X		
2.15	Unitdata (UDT)	X			
2.15.1	Extended Unitdata (XUDT)	X			
2.16	Unitdata Service (UDTS)	X			
2.16.1	Extended Unitdata Service (XUDTS)	X			
3.	Messages for SCCP Subsystem Management	-			
3.1	Subsystem-Allowed (SSA)	X			
3.2	Subsystem-Prohibited (SSP)	X			
3.3	Subsystem-Status-Test (SST)	X			
3.4	Subsystem-Out-Of-Service-Request (SOR)		X		

Table 2 Definitions and Functions of SCCP Messages

References		C	N	P	Comments
3.5	Subsystem-Out-Of-Service-Grant (SOG)		X		
3.6	Subsystem-Back up-Routing (SBR) (Optional)		X		
3.7	Subsystem-Normal-Routing (SNR) (Optional)		X		
3.8	Subsystem-Routing-Status-Test (SRT) (Optional)		X		
4.	SCCP Parameters	-			
4.1	Calling/called party address	X			
4.2	Credit			X	Note 5
4.3	Data	X			
4.4	Diagnostic	X			
4.5	End of optional parameters	X			
4.6	Error cause	X			
4.7	Local reference number (source/destination)	X			
4.8	Message type code	X			
4.9	Protocol class			X	Note 1
4.10	Receive sequence number		X		
4.11	Refusal cause	X			
4.12	Release cause	X			
4.13	Reset cause		X		
4.14	Return cause	X			
4.15	Segmenting or reassembling	X			
4.16	Sequencing or segmenting		X		



Table 2 Definitions and Functions of SCCP Messages

References		C	N	P	Comments
4.17	SCCP Hop Counter	X			
4.18	Segmentation	X			
4.19	Intermediate signaling Network Identification (ISNI)			X	Note 17
5.	Parameters for SCCP Subsystem Management	-			
5.1	Affected subsystem number	X			
5.2	Affected point code	X			
5.3	Subsystem multiplicity indicator	X			
6.	Inclusion of Fields in the Messages	X			

2.1.3 T1.112.3, SCCP Formats and Codes

Table 3 SCCP Formats and Codes

References		C	N	P	Comments
1.	Scope, Purpose and Application	X			
1.1	Routing label	X			
1.2	Message type code	X			
1.3	Formatting principles	X			
1.4	Mandatory fixed part	X			
1.5	Mandatory variable part	X			
1.6	Optional part	X			
1.7	End of optional parameters octet	X			

Table 3 SCCP Formats and Codes

References		C	N	P	Comments
1.8	Order of transmission	X			
1.9	Coding of spare bits	X			
1.10	National message types and parameters	X			
2.	Coding of the General Parts	X			
2.1	Coding of the message type			X	Note 1
2.2	Coding of the length indicator	X			
2.3	Coding of the pointers	X			
3.	SCCP Parameters	–			
3.1	End of optional parameters	X			
3.2	Destination local reference	X			
3.3	Source local reference	X			
3.4	Called party address	X			
3.4.1	Address Indicator	X			
3.4.2	Address	X			
3.4.2.1	Subsystem number	X			
3.4.2.2	Signaling point code	X			
3.4.2.3	Global Title	X			
3.4.2.3.1	Global Title Indicator = 0001	X			Note 35
3.4.2.3.2	Global Title Indicator = 0010	X			Note 35
3.5	Calling party address	X			



Table 3 SCCP Formats and Codes

References		C	N	P	Comments
3.6	Protocol class			X	Note 1
3.7	Segmenting or reassembling	X			
3.8	Receive sequence number		X		
3.9	Sequencing or segmenting		X		
3.10	Credit			X	Note 5
3.11	Release cause	X			
3.12	Return cause (for merly Diagnostic)	X			
3.13	Reset cause		X		
3.14	Error cause	X			
3.15	Refusal cause	X			
3.16	Data	X			
3.17	SCCP Hop Counter	X			
3.18	Segmentation	X			
3.19	Intermediate signaling Network Identification (ISNI)			X	Note 17
4.	SCCP Messages and Codes	-			Note 31 Note 32
4.1	General	-			
4.1.1		-			
4.1.2		-			
4.1.3		-			
4.1.4		-			
4.2	Connection Request (CR)	X			Note 33
4.3	Connection Confirm (CC)	X			Note 33
4.4	Connection Refused (CREF)	X			
4.5	Released (RLSD)	X			

Table 3 SCCP Formats and Codes

References		C	N	P	Comments
4.6	Release Complete (RLC)	X			
4.7	Data Form 1 (DT1)	X			
4.8	Data Form 2 (DT2)		X		
4.9	Data Acknowledgement (AK)		X		
4.10	Unitdata (UDT)	X			
4.10.1	Extended Unitdata (XUDT)			X	Note 17
4.11	Unitdata Service (UDTS)	X			
4.11.1	Extended Unitdata Service (XUDTS)			X	Note 17
4.12	Expedited Data (ED)		X		
4.13	Expedited Data Acknowledgement (EA)		X		
4.14	Reset Request (RSR)		X		
4.15	Reset Confirmation (RSC)		X		
4.16	Protocol Data Unit Error (ERR)	X			
4.17	Inactivity Test (IT)	X			
5.	SCCP Management Messages and Codes	-			
5.1	General	X			
5.1.1	SCMG format identifier			X	Note 6
5.2	SCMG Message Parameters	-			
5.2.1	End of optional parameters	-			
5.2.2	Affected SSN	X			
5.2.3	Affected PC	X			



Table 3 SCCP Formats and Codes

References		C	N	P	Comments
5.2.4	Subsystem multiplicity indicator	X			
5.3	SCMG Messages	X			
Annex A, Guidelines and Procedures for Assigning Internetwork Translation Type Code Values		-			
A.1	Introduction	X			
A.2	Assumptions	X			
A.3	Definitions	X			
A.4	Guidelines for Assigning Internetwork Translation Type Code Values	-			
A.4.1	Constraints and Logistics	X			
A.4.2	Determining Translation Type Needs	X			
A.4.3	Determining the Application or Translation Group	X			
A.5	Procedures for Requesting a Translation Type Code Assignment	X			
A.5.1	Content of Proposal	X			
A.5.2	Assignment of Translation Type Code	X			
Annex B, Descriptions of Application or Translation Groups		-			
B.1	Translation Type Code Value	-			
B.1.1	Application Design	-			

Table 3 SCCP Formats and Codes

References		C	N	P	Comments
B.1.2	Internetwork Needs	-			
B.1.3	Involved Nodes	-			
B.1.4	Global Title Translation Requirements	-			
B.1.4.1	Format of Identification Card	-			
B.1.4.2	Format of Banking or Financial Calling Card	-			
B.1.4.3	Format for 891 Telecommunication Charge Card	-			
B.1.4.4	Global Title Translation Addressing Information	X			
B.1.5	Relationship to Existing Application or Translation Groups	-			
B.1.6	ISO Standards	-			
B.2	Translation Type Code Value 2	-			
B.2.1	Application Description	-			
B.2.2	Internetwork Needs	-			
B.2.3	Involved Nodes	-			
B.2.4	Global Title Translation Requirements	-			
B.2.4.1	Format of 14 Digit Telecommunications Calling Card	-			
B.2.4.2	Global title Translation Addressing Information	X			



Table 3 SCCP Formats and Codes

References		C	N	P	Comments
B.2.5	Relationship to Existing Application or Translation Groups	-			
B.3	Translation Type Code Value 3	-			
B.3.1	Application Description	-			
B.3.2	Internetwork Needs	-			
B.3.4	Global Title Translation Requirements	X			
B.3.5	Relationship to Existing Application or Translation Groups	-			
B.4	Translation Type Code Value 4	-			
B.4.1	Application Description			X	Note 17
B.4.2	Internetwork Needs			X	Note 17
B.4.3	Involved Nodes	-			
B.4.4	Global Title Translation Requirements	X			
B.4.5	Relationship to Existing Application or Translation Groups	-			
B.5	Translation Type Code Value 5	-			
B.5.1	Application Description	-			
B.5.2	Internetwork Needs	-			
B.5.3	Involved Nodes	-			

Table 3 SCCP Formats and Codes

References		C	N	P	Comments
B.5.4	Global Title Translation Requirements	X			
B.5.5	Relationship to Existing Application or Translation Groups	-			
B.6	Translation Type Code Value 6	-			
B.6.1	Application Description	-			
B.6.2	Internetwork Needs	-			
B.6.3	Involved Nodes	-			
B.6.4	Global Title Translation Requirements	X			
B.6.5	Relationship to Existing Application or Translation Groups	-			
B.7	Translation Type Code Value 7	-			
B.7.1	Application Description	-			
B.7.2	Internetwork Needs	-			
B.7.3	Involved Nodes	-			
B.7.4	Global Title Translation Requirements	X			
B.7.5	Relationship to Existing Application or Translation Groups	-			
B.8	Translation Type Code Value 8	-			
B.8.1	Application Description	-			



Table 3 SCCP Formats and Codes

References		C	N	P	Comments
B.8.2	Internetwork Needs	-			
B.8.3	Involved Nodes	-			
B.8.4	Global Title Translation Requirements	X			
B.8.5	Relationship to Existing Application or Translation Groups	-			
Annex C, Descriptions of Application or Translation Groups		-			
C.1	Introduction			X	Note 2
C.2	Connection Refusal	X			
C.3	Connection Release	X			
C.4	Connection Reset		X		

2.1.4 T1.112.4, SCCP Procedures

Table 4 SCCP Procedures

References		C	N	P	Comments
1.	Scope, Purpose and Application	-			
1.1	General Characteristics of signaling Connection Control Procedures	-			
1.1.1	Purpose	-			
1.1.2	Protocol Classes			X	Note 1
1.1.2.1	Protocol Class 0	X			
1.1.2.2	Protocol Class 1	X			
1.1.2.3	Protocol Class 2	X			
1.1.2.4	Protocol Class 3		X		
1.1.3	Signaling Connections			X	Note 26

Table 4 SCCP Procedures

References		C	N	P	Comments
1.1.4	Compatibility and Handling of Unrecognized Information	-			
1.1.4.1	Rules for Forward Compatibility	X			
1.1.4.2	Handling of Unrecognized Messages or Parameters	X			
1.1.4.3	Handling of Unsupported Optional Parameter Value	X			
1.1.4.4	Treatment of Spare Fields	X			
1.1.4.5	Handling of Gaps	X			
1.2	Overview of Procedures for Connection-Oriented Services	-			
1.2.1	Connection Establishment			X	Note 26
1.2.2	Data Transfer			X	Note 1
1.2.3	Connection Release	X			
1.3	Overview of Procedures for Connectionless Services	-			
1.3.1	General	X			
1.4	Structure of the SCCP and Contents of Specification	X			
2.	Addressing and Routing	-			
2.1	SCCP Addressing	X			
2.2	SCCP Routing Principles			X	Note 9
2.2.1	Receipt of SCCP Message Transferred by the MTP	X			



Table 4 SCCP Procedures

References		C	N	P	Comments
2.2.2	Messages from Connection-Oriented or Connectionless Control to SCCP Routing Control	X			
2.2.2.1	DPC Present	X			
2.2.2.2	Translation Required	X			
2.3	SCCP Routing	X			
2.3.1	Receipt of SCCP Message Transferred by the MTP			X	Note 26
2.3.2	Messages from Connectionless or Connection-Oriented Control to SCCP Routing Control	X			
2.4	Routing Failures	X			
3.	Connection-Oriented Procedures	-			
3.1	Connection Establishment	-			
3.1.1	General			X	Note 11
3.1.2	Local Reference Number	X			
3.1.3	Negotiation Procedures	-			
3.1.3.1	Protocol Class Negotiation			X	Note 1
3.1.3.2	Flow Control Credit Negotiation		X		
3.1.4	Actions at the Originating Node	-			
3.1.4.1	Initial Actions			X	Note 1, Note 11
3.1.4.2	Subsequent Actions			X	Note 1, Note 5
3.1.5	Actions at the Relay Node with Coupling	-			
3.1.5.1	Initial Actions			X	Note 1, Note 11
3.1.5.2	Subsequent Actions			X	Note 1, Note 5

Table 4 SCCP Procedures

References		C	N	P	Comments
3.1.6	Actions at the Destination Node	-			
3.1.6.1	Initial Actions			X	Note 1, Note 11
3.1.6.2	Subsequent Actions			X	Note 1, Note 5
3.2	Connection Refusal	-			
3.2.1	Actions at Node Initiating Connection Refusal			X	Note 11
3.2.1.1	Initiating Connection Refusal at the Destination Node			X	Note 11 Note 37
3.2.1.2	Initiating Connection Refusal at a Relay Node			X	Note 11 Note 37
3.2.1.3	Initiating Connection Refusal at the Originating Node	X			
3.2.2	Actions at an Intermediate Node not Initiating Connection Refusal			X	Note 11 Note 37
3.2.3	Actions at the Originating Node not Initiating Connection Refusal	X			
3.3	Connection Release	-			
3.3.1	General	X			
3.3.2	Frozen Reference	X			
3.3.3	Actions at an End Node Initiating Connection Release	-			
3.3.3.1	Initial Actions	X			
3.3.3.2	Subsequent Actions			X	Note 7
3.3.4	Actions at a Relay Node	X			
3.3.4.1	Initial Actions			X	Note 11
3.3.4.2	Subsequent Actions			X	Note 7



Table 4 SCCP Procedures

References		C	N	P	Comments
3.3.5	Actions at an End Node not Initiating Connection Release	X			
3.4	Inactivity Control			X	Note 8 Note 34
3.5	Data Transfer	-			
3.5.1	General			X	Note 8
3.5.1.1	Actions at the Originating Node			X	Note 1
3.5.1.2	Actions at an Intermediate Node			X	Note 1
3.5.1.3	Actions at the Destination Node			X	Note 1
3.5.2	Flow Control	-			
3.5.2.1	General		X		
3.5.2.2	Sequence Numbering		X		
3.5.2.3	Flow Control Window		X		
3.5.2.4	Flow Control Procedures		X		
3.5.2.4.1	Transfer of Data Form 2 Messages		X		
3.5.2.4.2	Transfer of Data Acknowledgement Messages		X		
3.5.2.4.3	Reception of a Data or Data Acknowledgement Message		X		
3.5.3	Segmenting and Reassembly	X			
3.6	Expedited Data Transfer	-			
3.6.1	General		X		
3.6.2	Actions at the Originating Node		X		
3.6.3	Actions at a Relay Node		X		
3.6.4	Actions at the Destination Node		X		

Table 4 SCCP Procedures

References		C	N	P	Comments
3.7	Reset	-			
3.7.1	General		X		
3.7.2	Actions at an End Node Initiating the Reset Procedure	-			
3.7.2.1	Initial Actions		X		
3.7.2.2	Subsequent Actions		X		
3.7.3	Actions at a Relay Node	-			
3.7.3.1	Initial Actions		X		
3.7.3.2	Subsequent Actions		X		
3.7.4	Actions at an End Node not initiating the Reset Procedure		X		
3.7.5	Handling of Messages during the Reset Procedures		X		
3.8	Restart	-			
3.8.1	General	X			
3.8.2	Actions at the Recovered Node	-			
3.8.2.1	Initial Actions			X	Note 8, Note 18
3.8.2.2	Subsequent Actions	X			Note 18
3.8.3	Actions at the Non-Failed Far End Node	X			
3.9	Permanent signaling Connections		X		
3.10	Abnormalities	-			
3.10.1	General	X			
3.10.2	Syntax Error	X			
3.10.3	Action Tables			X	Note 1
3.10.4	Actions upon the Reception of an ERR Message	X			
4.	Connectionless Procedures	X			



Table 4 SCCP Procedures

References		C	N	P	Comments
4.1	Data Transfer	X			
4.1.1	Segmentation or Reassembly	-			
4.1.1	Segmentation	-			
4.1.1.1.1	General	X			
4.1.1.1.2	Normal Procedures	X			
4.1.1.1.3	Return on Error Procedures	X			
4.1.1.2	Reassembly	-			
4.1.1.2.1	General	X			
4.1.1.2.2	Normal Procedures	X			
4.1.1.2.3	Return on Error Procedures	X			
4.2	Message Return	X			
4.3	Syntax Error	X			
5.	SCCP Management Procedures	-			
5.1	General			X	Note 10
5.2	Signaling Point Status Management	-			
5.2.1	General	X			
5.2.2	Signaling Point Prohibited	X			
5.2.3	Signaling Point Allowed	X			
5.2.4	Signaling Point Congested	X			
5.2.5	SCCP reaction to local MTP restart	X			
5.3	Subsystem Status Management	-			
5.3.1	General	X			
5.3.2	Subsystem Prohibited	-			
5.3.2.1	Receipt of Message for a Prohibited Subsystem	X			

Table 4 SCCP Procedures

References		C	N	P	Comments
5.3.2.2	Receipt of Subsystem -Prohibited Message or N-STATE Request Primitive or Local User Failed			X	Note 6, Note 23
5.3.3	Subsystem Allowed			X	Note 6, Note 23
5.3.4	Subsystem Status Test	-			
5.3.4.1	General	X			
5.3.4.2	Actions at the Initiating Node	X			
5.3.4.3	Actions at the Receiving Node	X			
5.3.5	Coordinated State Change	-			
5.3.5.1	General		X		
5.3.5.2	Actions at the Requesting Node		X		
5.3.5.3	Actions at the Requested Node		X		
5.3.6	Local Broadcast	-			
5.3.6.1	General	X			Note 27
5.3.6.2	User-out-of-Service			X	Note 23, Note 27
5.3.6.3	User-in-Service			X	Note 23, Note 27
5.3.6.4	Signaling Point Inaccessible			X	Note 25, Note 27
5.3.6.5	Signaling Point Accessible			X	Note 25, Note 27
5.3.6.6	Signaling Point Congested			X	Note 25, Note 27
5.3.6.7	SCCP Inaccessible			X	Note 25
5.3.6.8	SCCP Accessible			X	Note 25
5.3.7	Broadcast	-			
5.3.7.1	General	X			
5.3.7.2	Subsystem Prohibited			X	Note 23
5.3.7.3	Subsystem Allowed			X	Note 23



Table 4 SCCP Procedures

References		C	N	P	Comments
5.4	Traffic Information Management		X		
5.4.1	General		X		
5.4.2	Traffic Mix Procedures		X		
5.4.2.1	End-Node or Database	-			
5.4.2.1.1	Traffic-Mix Information		X		
5.4.2.1.2	Subsystem Backup Routing		X		
5.4.2.1.3	Subsystem Normal Routing		X		
5.4.3	Calculation of Traffic-Mix Information	-			
5.4.3.1	General		X		
5.4.3.2	End-Node or Database		X		
5.4.4	Subsystem Routing Status Test	-			
5.4.4.1	General		X		
5.4.4.2	Actions at the Initiating Node		X		
5.4.4.3	Actions at the Receiving Node		X		
5.5	SCCP Flow Control (Optional)	-			
5.5.1	General	X			
5.5.2	SCCP Prohibited Control	X			
5.5.3	SCCP Allowed Control	X			
5.5.4	SCCP Status Test	X			
5.6	SCCP Restart	X			Note 30
6.	State Transition Diagrams	-			
6.1	General	-			
6.2	Drafting Conventions	-			
6.3	SCCP Routing	-			

Table 4 SCCP Procedures

References		C	N	P	Comments
6.4	SCCP Connection-Oriented Control	-			
6.5	SCCP Connectionless Control	-			
6.6	SCCP Management	-			
6.7	Architecture Dependent Functions	-			
6.8	Abbreviations and Timers	-			

2.1.5 T1.112.5

SCCP performance depends on the target environment and cannot be specified.

2.2 SCCP T1.116 ANSI - 1996

2.2.1 T1.116.2, Monitoring and Measurements for signaling

Table 5 Monitoring and Measurements for signaling

References		C	N	P	Comments
1.	Introduction	-			
1.1	General	-			
1.1.1		X			
1.1.2			X		
1.2	Network view	-			
1.2.1		-			
1.3	Guidelines for uses of measurements	-			
1.3.1		-			
1.4	Grouping of measurements	-			
1.4.1		X			
1.4.2		X			



Table 5 Monitoring and Measurements for signaling

References		C	N	P	Comments
1.5	Collection of measurements	-			
1.6	Definition of terms	-			
1.6.1	fault (F)			X	Note 19
1.6.2	configuration (C)	X			
1.6.3	performance (P)	X			
1.6.4	accounting (A)	X			
1.6.5	network planning and administration (N)	X			
1.6.6	near real time measurements (R)	X			
1.7	Listing of measurements	-			
1.7.1	General	-			
1.7.1.1		-			
1.7.1.2		X			
1.7.1.3				X	Note 20
1.7.1.4		X			
1.7.1.5		X			
1.7.1.6			X		
1.7.1.7			X		Note 13
1.7.2	Intervals for measurements		X		Note 13
1.8	Techniques for filtering measurements	-			
1.8.1	Single faults giving rise to multiple error reports	X			
1.9	References	X			
2.	MTP monitoring and measurements	-			
3.	SCCP monitoring and measurements	-			
3.1	General	X			
3.2	Table 7	-			
3.2.1		X			

Table 5 Monitoring and Measurements for signaling

References		C	N	P	Comments
3.3	Table 8	-			
3.3.1		-			
3.3.2			X		
3.3.3				X	Note 15
3.4	Table 9	-			
3.4.1		X			
3.4.2		X			
3.4.3				X	Note 16
3.4.4		X			
3.4.5			X		
3.4.6				X	Note 1, Note 19
3.5	Table 9 bis	-			
3.5.1				X	Note 1, Note 19
4.	ISDN-UP monitoring and measurements	-			
5.	TC monitoring and measurements	-			
6.	Uses of measurements	-			
6.1	Introduction	-			
6.1.1				X	Note 19
6.1.2				X	Note 19
6.2	Message transfer part (MTP)	-			
6.3	signaling connection control part (SCCP)	-			
6.3.1	SCCP fault management	-			
6.3.1.1	Routing failures	X			
6.3.1.2	SCCP unavailability			X	Note 14
6.3.1.3	Connectionless SCCP segmentation and reassembly faults	X			
6.3.2	SCCP configuration management			X	Note 14



Table 5 Monitoring and Measurements for signaling

References		C	N	P	Comments
6.3.3	SCCP performance	-			
6.3.3.1	Utilization			X	Note 1
6.3.3.2	SCCP Quality of Service			X	Note 1
6.4	Integrated services digital network user part (ISDN-UP)	-			
6.5	Transaction Capabilities (TC)	-			
6.6	Preparation of traffic forecasts	-			
6.7	Network planning	-			
6.8	Evaluation of maintenance force effectiveness	-			
6.9	Near real time network control	-			
7.	Accounting of MTP and SCCP message traffic	-			
Table 1	MTP signaling Link Faults and Performance	-			
Table 2	MTP signaling Link Availability	-			
Table 3	MTP signaling Link Utilization	-			
Table 4	MTP signaling Link Set and Route Set Availability	-			
Table 5	MTP signaling Point Status	-			
Table 6	MTP signaling Traffic Distribution (signaling Route Utilization)	-			
Table 7	SCCP Error Performance	-			
Table 7.1	Routing Failure - No translation for address of such nature			X	Note 19

Table 5 *Monitoring and Measurements for signaling*

References		C	N	P	Comments
Table 7.2	Routing Failure - No translation for this specific address			X	Note 19
Table 7.3	Routing Failure - Network Failure (Point Code not available)			X	Note 19
Table 7.4	Routing Failure - Network Congestion			X	Note 19
Table 7.5	Routing Failure - Subsystem Failure (unavailable)			X	Note 19
Table 7.6	Routing Failure - Subsystem Congestion			X	Note 3, Note 12, Note 29
Table 7.7	Routing Failure - Unequipped user (Subsystem)			X	Note 19
Table 7.8	Syntax Error Detected		X		
Table 7.9	Routing Failure - Unqualified			X	Note 19
Table 7.10	Reassembly Error - Timer T(reass) expiry			X	Note 19
Table 7.11	Reassembly Error - Segment received out of sequence (inc. duplicates, recpt of non-first segment for which no reassembly process)			X	Note 19
Table 7.12	Reassembly Error - No reassembly space			X	Note 21
Table 7.13	Hop counter violation (XUDT, XUDTS, LUDT, LUDTS and other messages - for example CR)			X	Note 19 Note 31 Note 32
Table 8	SCCP Subsystem Availability	-			
Table 8.1	Start of local SCCP unavailable - Failure		X		



Table 5 Monitoring and Measurements for signaling

References		C	N	P	Comments
Table 8.2	Start of local SCCP unavailable - Maintenance made busy		X		
Table 8.3	Start of local SCCP unavailable - Congestion		X		
Table 8.4	Stop of local SCCP unavailable - All reasons		X		
Table 8.5	Duration of local SCCP Unavailable - All reasons		X		
Table 8.6	Subsystem out-of-service request granted		X		
Table 8.7	Subsystem out-of-service request denied		X		
Table 9	SCCP Utilization	-			
Table 9.1	UDTS message sent moved to 9 bis.2	-			
Table 9.2	UDTS message received moved to 9 bis.4	-			
Table 9.3	Total messages handled (from local or remote subsystems)		X		
Table 9.4	Total messages intended for local subsystem		X		
Table 9.5	Total messages requiring global title translation			X	Note 19
Table 9.6	Total messages originating (for connectionless classes 0.1 only) per source SSN		X		
Table 9.7	Total messages received (for connectionless classes 0.1 only) per sink SSN		X		

Table 5 Monitoring and Measurements for signaling

References		C	N	P	Comments
Table 9.8	Messages sent to backup subsystem		X		
Table 9.9	DT1 messages received from MTP per sink SSN			X	Note 19, Note 22
Table 9.10	DT1 messages sent to MTP per source SSN			X	Note 19, Note 22
Table 9.11	DT2 messages received from MTP per sink SSN		X		
Table 9.12	DT2 messages sent to MTP per source SSN		X		
Table 9.13	ED messages sent to MTP per source SSN		X		
Table 9.14	ED messages received from MTP per sink SSN		X		
Table 9 bis	SCCP Quality of Service	-			
Table 9 bis.1	UDT messages sent			X	Note 19
Table 9 bis.2	UDTS messages sent			X	Note 19
Table 9 bis.3	UDT messages received			X	Note 19
Table 9 bis.4	UDTS messages received			X	Note 19
Table 9 bis.5	CR messages sent to MTP plus ISDN-UP embedded CRs (ffs)			X	Note 11, Note 19
Table 9 bis.6	CREF messages sent to MTP			X	Note 19
Table 9 bis.7	CR messages received from MTP plus ISDN-UP embedded CRs (ffs)			X	Note 11, Note 19
Table 9 bis.8	CREF messages received from MTP			X	Note 19
Table 9 bis.9	RSR messages sent to MTP		X		
Table 9 bis.10	RSR messages received from MTP		X		



Table 5 Monitoring and Measurements for signaling

References		C	N	P	Comments
Table 9 bis.11	ERR messages sent to MTP			X	Note 19
Table 9 bis.12	ERR messages received from MTP			X	Note 19
Table 9 bis.13	XUDT messages sent (ffs)			X	Note 19
Table 9 bis.14	XUDTS messages sent (ffs)			X	Note 19
Table 9 bis.15	XUDT messages received (ffs)			X	Note 19
Table 9 bis.16	XUDTS messages received (ffs)			X	Note 19
Table 10	ISDN User Part Availability	-			
Table 11	ISDN User Part Utilization	-			
Table 12	ISDN User Part errors	-			
Table 13	Local TC Utilization	-			
Table 14	TC Fault Measurements	-			
Annex A		-			





3 Notes

- Note 1** Protocol Class 3 is not supported (flow control connection-oriented class).
- Note 2** N-INFORM request, N_RESET, N-EXPEDITED DATA and N-DATA ACKNOWLEDGE are not supported.
- Note 3** N_COORD, N_TRAFFIC and N_PCSTATE. Parts of the N-PCSTATE functionality is implemented using the N-STATE Indication. For compliance refer to the following sub-clauses.
- Note 4** The parameters: Concatenation/Separation, Flow control, Error Detection, Error Correction, NSDU delimiting, Expedited data, Missequence detection, Sequence Recovery, Reset and Receipt Confirmation are not implemented.
- Note 5** Credit negotiation is not supported and only relevant for Class 3 messages but mandatory in the Inactivity Test message thus included but coded all zeros. If received, the credit parameter it is ignored.
- Note 6** The following SCCP Management messages are not supported: SOR, SOG, SBR, SNR and SRT.
- Note 7** T(int) and T(repeat rel) timers are not supported.
- Note 8** Permanent signaling connections are not supported.
- Note 9** Translation from SPC and SSN to GT is not supported.
- Note 10** Traffic information management is optional and is not supported.
- Note 11** ISDN-UP connections are not supported.
- Note 12** Subsystem Congestion not supported in the ANSI standard.
- Note 13** This module does not support timestamps for events that are reported on occurrence.
- Note 14** Coordinated state change (SOR and SOG) is not supported.
- Note 15** Measurements are architecture dependent and therefore optional. Local SSN availability is reported.

- Note 16** Statistics are available on an individual message type basis and can thus be converted into overall messages received.
- Note 17** No record is kept of messages sent through backup (that is non-primary) routes. The ISNI parameter is partly supported in this version of SCCP. If the parameter is received in a relay node as part of a messages XUDT, XUDTS or LUDT, LUDTS, the message will be passed to the other node without changing the parameter data. If the parameter is received in an end node, the parameter is ignored. It is not included in messages sent by the SCCP user.
- Note 18** The usage of the T(guard) timer is a configurable option. If T(guard) is used it will not be started if the functionality to set connection state upon node recovery is used. As a recommended alternative to the timer a restart counter has been implemented that assures that local reference numbers are not re-used after a node recovery. The restart counter does not have the time penalty inherent with T(guard) upon a node recovery.
- Note 19** Every fault is reported on occurrence instead of the first occurrence. Duration can be accomplished by sending management primitives to SCCP at requested time interval.
- Note 20** See section 1.6 (Q.752) for details of the categories that are supported.
- Note 21** Alarm reserved.
- Note 22** Not on a per SSN basis
- Note 23** The proprietary N_BIND_req and N_UNBIND_req used to implement behavior of N-STATE Request.
- Note 24** The "Affected DPC " is included as a part of the N-STATE which is used instead of the PC-STATE for signaling point status. Refer to Note 25.



- Note 25** N_STATE with SSN=1 used instead of N_PCSTATE to inform the upper layer of the “signaling Point Status” and “SCCP availability (inaccessible/accessible)”. The MTP-STATUS user part unavailable information is reported with a calculated “Restricted Importance Level” that is presented in the User Status parameter of the N_STATE primitive. The “Restricted Importance Level” is determined using restriction level (RL). There is a configurable option that defines how many levels are used in N_STATE_ind. T(attack) and T(decay) are used to regulate MTP congestion levels.
- Note 26** Connection oriented relay point without coupling (association) is not supported.
- Note 27** Concerned subsystems at remote SCCP signaling points are configured per local signaling point, hence all local subsystem at given local SCCP signaling point are considered to be concerned when the local broadcast procedure is initiated.
- Note 28** SMI is a configurable parameter in the SCCP configuration file.
- Note 29** The SCCP are only compliant with Table 1/T1.112.2 for supported messages and parameters according to this statement of compliance for section 2, 3, 4 and 5 of T.112.2.
- Note 30** It is a configurable option if all remote SSN shall be considered allowed at the reception of a MTP-RESUME indication or if the subsystem shall be marked “prohibited” and subsystem test procedure should be used to audit the remote subsystem state.
- Note 31** Supports the transportation of up to 4062 octets of user data without invoking the segmentation procedures.
- LUDT is supported in ANSI, though the version of ANSI standard which SCCP complies to does not define LUDT at all.
- LUDT support complies to ANSI T1.112-2001.
- Note 32** LUDTS is supported in ANSI, though the version of ANSI standard which SCCP complies to does not define LUDT at all.
- LUDTS support complies to ANSI T1.112-2001.
- Note 33** Credit negotiation is not supported. SCCP supports only the protocol class parameter 2.



- Note 34** When IT message is received on a connection with unassigned destination local reference number, it is answered with ERR message.
- Note 35** Current SCCP supports 1 - 18 digits in GT address information, where each digit is 0 - 9, A, B, C, D, E or F.
- Note 36** SCCP does not support "network service user failure" reason, "network service user congestion" reason and QOS-related reasons in N_INFORM indication.
- Note 37** When the first attempt to send CREF message is failed, SCCP uses the timer T(ConnRefused) and the hard-coded number of attempts (equal to 5) to resend CREF message.



Reference List

ANSI standards

- [1] *American National Standard for Telecommunications, Specification of signaling System No. 7 (SS7) - Functional Description of the signaling System - signaling Connection Control Part (SCCP) ANSI, T1.112 - 1996.*
- [2] *American National Standard for Telecommunications, Monitoring and Measurements for signaling System Number 7 Networks, ANSI , T1.116.2-1996*