

# TCAP ANSI

## ANSI 2000



### STATEMENT OF COMPLIANCE

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# 1 Introduction

This document describes how Ericsson SS7 TCAP ANSI complies with the following ANSI Standards:

- American National Standard for Telecommunications - Signaling System No. 7 (SS7) - Transaction Capabilities Application Part (TCAP), ANSI T1.114 - 2000 (Page 27)
- American National Standard for Telecommunications - Signaling System No. 7 (SS7) - Transaction Capabilities Application Part (TCAP), ANSI T1.114 - 1992 (Page 27)
- American National Standard for Telecommunications - Signaling System No. 7 (SS7) - Monitoring and Measurement for Networks, ANSI T1.115 - 1990 (Page 27)

## 1.1 Concept

This section will explain the different concepts that will be used in the compliance lists. The terms that are used are:

<b>C</b>	Ericsson Signaling Solution module complies with the specified paragraph in the standard.
<b>N</b>	Ericsson Signaling Solution module does not comply with the specified paragraph in the standard.
<b>P</b>	Ericsson Signaling Solution module complies partly with the specified paragraph in the standard. Specify in a note what in the module that does comply and what that does not.
<b>-</b>	There is nothing to implement in the referred paragraph (used in column "C").





## 2 Compliance Lists

### 2.1 TCAP, ANSI T1.114 - 2000

#### 2.1.1 T1.114.1, Functional Description of Transaction Capabilities

*Table 1 Functional Description of Transaction Capabilities*

References		C	N	P	Comments
1.	Scope, Purpose and Application	-			
1.1	General	X			
1.2	Definition of TC	X			
1.3	Scope of TC			X	Note 1
1.4	Scope of the Specification of TC	X			
2	Architectural Concepts and Terminology	-			
2.1	Application of OSI Reference Model	X			
2.2	Considerations	-			
2.2.1	Addressing of Upper Layer Entities	X			
2.2.2	Management of Upper Layer Entities	X			
2.2.3	Layered versus Nonlayered	X			Note 2
2.2.4	Architecture Model versus Implementation	X			Note 3
3.	Overview of TC Functions and Procedures	-			
3.1	Framework for TC Protocol	X			
3.2	Discussion	-			
3.2.1	Application	X			
3.2.2	Presentation	-			Note 10
3.2.3	Session	-			Note 10
3.2.4	Transport	-			Note 10
3.3	Identifying Services Required of Each Layer	X			Note 4
3.4	General Description of TCAP procedures	-			
3.4.1	Types of Transactions	X			
3.4.2	Initiation of Transactions	X			

*Table 1 Functional Description of Transaction Capabilities*

References		C	N	P	Comments
3.4.3	Termination of Transactions	X			
3.4.4	Association of Application Process Transactions	X			
3.4.5	Correlation of Components	X			
3.5	General Component Procedures	X			
3.5.1	Operation Succeeds	X			
3.5.2	Operation Fails	X			
3.5.3	Protocol Error at Component Level	X			
3.5.4	Protocol Error at TCAP Message Level	X			
3.6	Service Procedures	X			
4.	Layer Service Characteristics	-			
4.1	Layer Services Assumed from the SCCP			X	Note 5
4.1.1	Description	X			
4.1.2	Primitives and Parameters			X	Note 5
4.2	Primitives and Layer Services for ASP Layers	X			
4.3	Layer Services provided to the Application process	X			
5.	Structure of T1.114			X	Note 3

## 2.1.2 T1.114.2, Definition and Functions of Transaction Capability Messages

*Table 2 Definition and Functions of Transaction*

References		C	N	P	Comments
1.	Scope, Purpose and Application	X			
2.	Protocol Message Requirements	X			
3.	Transaction Portion	-			
3.1	Package Type Identifier	X			
3.2	Total TCAP Message Length	X			
3.3	Transaction ID Identifier	X			





*Table 2 Definition and Functions of Transaction*

<b>References</b>		<b>C</b>	<b>N</b>	<b>P</b>	<b>Comments</b>
3.4	Transaction ID Length	X			
3.5	Transaction ID	X			
3.5.1	Originating Transaction ID	X			
3.5.2	Responding Transaction ID	X			
3.6	P-Abort Cause Identifier	X			
3.7	P-Abort Cause Length	X			
3.8	P-Abort Cause	X			
3.9	User Abort Information Identifier	X			
3.10	User Abort Information Length	X			
3.11	User Abort Information	X			
3.12	Component Sequence Identifier	X			
3.13	Component Sequence Length	X			
4.0	Dialogue Portion	-			
4.1	Dialogue Portion Identifier	X			
4.2	Dialogue Portion Length	X			
4.3	Protocol Version Identifier	X			
4.4	Protocol Version Identifier	X			
4.5	Protocol Version	X			
4.6	Application Context Identifier	X			
4.7	Application Context Length	X			
4.8	User Information Identifier	X			
4.9	User Information Length	X			
4.10	Security Context Identifier	X			
4.11	Security Context Length	X			
4.12	Confidentiality Identifier	X			
4.13	Confidentiality Length	X			
5.	Component Portion	-			
5.1	Component Sequence Identifier	X			
5.2	Component Sequence Length	X			
5.3	Component Type Identifier	X			



Table 2 Definition and Functions of Transaction

References		C	N	P	Comments
5.4	Component Length	X			
5.5	Component ID Identifier	X			
5.6	Component ID Length	X			
5.7	Component ID	X			
5.7.1	Invoke ID	X			
5.7.2	Correlation ID	X			
5.8	Operation Code Identifier	X			
5.8.1	National	X			
5.8.2	Private	X			
5.9	Operation Code Length	X			
5.10	Operation Code	X			
5.11	Error Code Identifier	X			
5.11.1	National	X			
5.11.2	Private	X			
5.12	Error Code Length	X			
5.13	Error Code	X			
5.14	Problem Code Identifier	X			
5.15	Problem Code Length	X			
5.16	Problem Code	X			
5.16.1	General	X			
5.16.2	Invoke	X			
5.16.3	Return Result	X			
5.16.4	Return Error	X			
5.16.5	Transaction Portion	X			
5.17	Parameter Set Identifier	X			
5.18	Parameter Set Length	X			
5.19	Parameter Sequence Identifier	X			
5.20	Parameter Sequence Length	X			
6.	Parameters	X			



### 2.1.3 T1.114.3, TC Formats and Codes

Table 3 TC Formats and Codes

References		C	N	P	Comments
1.	Scope, Purpose and Application	X			
2.	Data Element Encoding	X			
2.1	Identifier	X			
2.1.1	Universal, Application-wide, and Context-specific Classes	-			
2.1.1.1	Low Identifier Codes	X			
2.1.1.2	High Identifier Codes	X			
2.1.2	Private Use Class	X			
2.1.2.1	Low Identifier Codes	X			
2.1.2.2	High Identifier Codes	X			
2.2	Length Of Contents	X			Note 19
2.3	TCAP Message Structure	X			
3.	Transaction Portion	-			
3.1	Package Type Identifier	X			
3.2	Total TCAP Message Length	X			
3.3	Transaction ID Identifier	X			
3.4	Transaction ID Length	X			
3.5	Transaction IDs	X			
3.5.1	Originating Transaction ID	X			
3.5.2	Responding Transaction ID	X			
3.6	P-Abort Cause Identifier	X			
3.7	P-Abort Cause Length	X			
3.8	P-Abort Cause	X			
3.9	User Abort Information Identifier	X			
3.10	User Abort Information Length	X			
3.11	User Abort Information	X			
3.12	Component Sequence Identifier	X			
3.13	Component Sequence Length	X			
4.0	Dialogue Portion	-			
4.1	Dialogue Portion Identifier	X			
4.2	Dialogue Portion Length	X			

*Table 3 TC Formats and Codes*

<b>References</b>		<b>C</b>	<b>N</b>	<b>P</b>	<b>Comments</b>
4.3	Protocol Version Identifier	X			
4.4	Protocol Version Identifier	X			
4.5	Protocol Version	X			
4.6	Application Context Identifier	X			
4.7	Application Context Length	X			
4.8	User Information Identifier	X			
4.9	User Information Length	X			
4.10	User Information	X			
4.10.1	External Identifier	X			
4.10.2	External Length	X			
4.10.3	Direct Reference Identifier	X			
4.10.4	Direct Reference Length	X			
4.10.5	Direct Reference Content	X			
4.10.6	Indirect Reference Identifier	X			
4.10.7	Indirect Reference Length	X			
4.10.8	Indirect Reference Contents	X			
4.10.9	Data Value Descriptor Identifier	X			
4.10.10	Data Value Descriptor Length	X			
4.10.11	Data Value Descriptor Contents	X			
4.10.12	Encoding Identifier	X			
4.10.13	Encoding Length	X			
4.10.14	Encoding Content	X			
4.11	Security Context Identifier	X			
4.12	Security Context Length	X			
4.13	Confidentiality Identifier	X			
4.14	Confidentiality Length	X			
4.15	Confidentiality Information	X			
4.15.1	Confidentiality Algorithm ID Identifier	X			



Table 3 TC Formats and Codes

References		C	N	P	Comments
4.15.2	Confidentiality Algorithm ID Length	X			
4.15.3	Confidentiality Algorithm ID	X			
4.15.4	Confidentiality Value Identifier	X			
4.15.5	Confidentiality Value	X			
5.	Component Portion	X			
5.1	Component Sequence Identifier	X			
5.2	Component Sequence Length	X			
5.3	Component Type Identifier	X			
5.4	Component Length	X			
5.5	Component ID Identifier	X			
5.6	Component ID Length	X			
5.7	Component IDs	X			
5.7.1	Invoke ID	X			
5.7.2	Correlation ID	X			
5.8	Operation Code Identifier	X			
5.9	Operation Code Length	X			
5.10	Operation Code	X			
5.11	Error Code Identifier	X			
5.12	Error Code Length	X			
5.13	Error Code	X			
5.14	Problem Code Identifier	X			
5.15	Problem Code Length	X			
5.16	Problem Code	X			
5.16.1	Problem Type	X			
5.16.2	Problem Specifier	X			
5.17	Parameter Set Identifier	X			
5.18	Parameter Set Length	X			
5.19	Parameter Sequence Identifier	X			
5.20	Parameter Sequence Length	X			
6.	Parameters	X			
7.	Summary of Identifiers	X			Note 8

## 2.1.4 T1.114.4, Transaction Capabilities Procedures

Table 4 Transaction Capabilities Procedures

References		C	N	P	Comments
1.	Scope, Purpose and Application	X			
1.1	Basic Guidelines	X			
1.2	Overview	X			
2.	Addressing	X			
3.	Normal Procedures	X			
3.1	Functional Grouping	X			
3.2	Transaction Portion	-			
3.2.1	Connectionless Network Services	X			
3.2.1.1	Actions at the Initiating End	X			
3.2.1.2	Actions at the Receiving End	X			
3.2.1.3	Conversation Mode	X			
3.2.1.4	Permission or Not to Release in the Conversation Mode	X			
3.2.1.5	Termination of TCAP Transaction	X			
3.2.1.6	Application Process Transaction vs Logical Connection	X			
3.2.2	Connection-Oriented Network Services	-			Note 9
3.3	Dialogue Portion	X			
3.3.1	Dialogue Portion Functions	X			
3.3.2	Protocol Version	X			
3.3.3	Application Context	X			
3.4	Component Portion	X			
3.4.1	Assignment of Component Identifiers by a TC-user	X			
3.4.2	Assignment of Component States by a TC-user	X			
3.4.3	Maintenance of Invoke IDs	X			
4.	Abnormal Procedures	-			
4.1	Connectionless Network Service	-			
4.1.1	General	X			
4.1.2	Introduction	X			
4.1.3	Abnormal Conditions	X			



**Table 4 Transaction Capabilities Procedures**

<b>References</b>		<b>C</b>	<b>N</b>	<b>P</b>	<b>Comments</b>
4.1.3.1	Protocol Errors	X			
4.1.3.2	Application Errors	X			
4.1.3.3	End User Abnormalities	X			
4.1.4	Detection	X			
4.1.5	Reporting	X			
4.1.5.1	Reject	X			
4.1.5.2	Return Error	X			
4.1.5.3	Return Result	X			
4.1.6	Recovery	X			
4.1.7	Abnormal Procedures Relating to Transaction Portion			X	Note 20
4.1.8	Abnormal Procedures Relating to Dialogue Portion	X			
4.1.9	Abnormal Procedures Related to Operations	X			
4.1.10	Abnormal Procedures Related to Components	X			
4.2	Connection-Oriented		X		Note 9
A1	State Transition Diagrams	-			
A1.1	Overview	-			
A1.2	Abbreviations Used in the State Transition Diagrams	-			
A1.3	Defined States	-			

## 2.1.5 T1.114.5, Definitions and Functions of Transaction Capability Operations, Parameters and Error Codes

**Table 5 Definitions and Functions of Transaction**

<b>References</b>		<b>C</b>	<b>N</b>	<b>P</b>	<b>Comments</b>
1.	Scope, Purpose and Application	X			
2.	Operations	X			
2.1	Operation Code	X			
2.1.1	Parameter Family - 0000001	X			

*Table 5 Definitions and Functions of Transaction*

<b>References</b>		<b>C</b>	<b>N</b>	<b>P</b>	<b>Comments</b>
2.1.2	Charging Family - 0000010	X			
2.1.3	Provide Instructions Family - 0000011	X			
2.1.4	Connection Control Family - 0000100	X			
2.1.5	Caller Interaction Family - 000101	X			
2.1.6	Send Notification Family - 0000110	X			
2.1.7	Network Management Family - 0000111	X			
2.1.8	Procedural Family - 0001000	X			
2.1.9	Operation Control Family - 0001001	X			
2.1.10	Report Event Family - 0001010	X			
2.1.11	Miscellaneous Family - 1111110	X			
3.	Errors	X			
3.1	Error Code	X			
4.	Parameters	X			
4.1	Timestamp - 00010111	X			
4.2	Automatic Code Gap (ACG) Indicators - 10000001	X			
4.2.1	Control Cause Indication	X			
4.2.2	Duration	X			
4.2.3	Gap	X			
4.3	Standard Announcement - 10000010	X			
4.4	Customized Announcement - 10000011	X			
4.5	Digits - 10000100	X			
4.5.1	Type of Digits	X			
4.5.2	Nature of Number	X			
4.5.3	Encoding	X			
4.5.4	Numbering Plan	X			
4.5.5	Number of Digits	X			
4.5.6	Digit Representation	X			
4.6	Standard User Error Code - 10000101	X			
4.7	Problem Data - 10000110	X			
4.8	SCCP Calling Party Address - 10000111	X			
4.9	Transaction ID - 10001000	X			





*Table 5 Definitions and Functions of Transaction*

<b>References</b>		<b>C</b>	<b>N</b>	<b>P</b>	<b>Comments</b>
4.10	Package Type - 10001001	X			
4.11	Service Key - 10101010	X			
4.12	Busy/Idle Status - 10001011	X			
4.13	Call Forwarding Status - 10001100	X			
4.14	Originating Restrictions - 10001101	X			
4.15	Terminating Restrictions - 10001110	X			
4.16	Directory Number (DN) to Line Service Type Mapping - 10001111	X			
4.17	Duration - 10010000	X			
4.18	Returned Data - 10110001	X			
4.19	Bearer Capability Requested - 10010010	X			
4.20	Bearer Capability Supported - 10010011	X			
4.21	Reference ID - 10010100	X			
4.22	Business Group Parameter - 10010101	X			
4.22.1	Attendant Status (AttSt)	X			
4.22.2	Business Group Identifier Type (BGID)	X			
4.22.3	Line Privileges Information Indicator (LPID)	X			
4.22.4	Party Selector	X			
4.22.5	Business Group ID	X			
4.22.6	Sub-Group ID	X			
4.22.7	Line Privileges	X			
4.23	Signaling Networks Identifier - 10010110	X			
4.24	Generic Name- 10010110	X			
4.25	Message Waiting Indicator Type - 10011000	X			
4.26	Look Ahead for Busy Response - 10011001	X			
4.26.1	Location	X			
4.26.2	Spare	X			
4.26.3	Acknowledgement Type	X			
4.27	Circuit Identification Code - 10011010	X			

**Table 5** *Definitions and Functions of Transaction*

<b>References</b>		<b>C</b>	<b>N</b>	<b>P</b>	<b>Comments</b>
4.27.1	Circuit Identification Code (Octet 1)	X			
4.27.2	Circuit Identification Code (Octet 2)	X			
4.27.3	Spare (Octet 2)	X			
4.28	Precedence Identifier - 10011011	X			
4.28.1	Precedence Level (Octet 1)	X			
4.28.2	Spare (Octet 1)	X			
4.28.3	Network Identity (NI) (Octet 1 and 2)	X			
4.28.4	Service Domain (National Identifier) (Octets 2 and 3)	X			
4.29	Call Reference -10011100	X			
4.29.1	Call Identity (Octets 1 - 3)	X			
4.29.2	Point Code (Octets 4-6)	X			
4.30	Authorization - 11011101	X			
4.31	Integrity -11011110	X			
4.32	Sequence Number - 01011111 00011111	X			
4.33	Number of messages – 01011111 0010000	X			
4.34	Display text – 01011111 0010001	X			
4.35	Key Exchange – 01011111 0010010	X			
4.36	SCCP Called Party Address – 01011111 0010011	X			

## 2.1.6 Monitoring and Measurements for Networks, ANSI T1.115 - 1990

**Table 6** *Monitoring and Measurements for Networks, ANSI T1.115 - 1990*

<b>References</b>		<b>C</b>	<b>N</b>	<b>P</b>	<b>Comments</b>
1.	Scope, Purpose and Application	-			
1.1	Introduction	X			
1.2	Local and Global View	-			
1.3	Grouping of Measurements	-			
1.4	Guidelines for Uses of Measurements	-			
2.	Definition of Terms	-			



*Table 6 Monitoring and Measurements for Networks, ANSI T1.115 - 1990*

References		C	N	P	Comments
2.1	Operation	-			
2.1.1	<No heading>	X			
2.1.2	<No heading>	-			Note 11
2.1.3	<No heading>	-			Note 11
2.2	Maintenance	X			
2.3	Administration	-			
2.3.1	<No heading>	X			
2.3.2	<No heading>	X			
3.	Listing of Measurements	-			
3.1	General			X	Note 12
3.2	Table 1/T1.115 MTP Signaling Link Performance	-			
3.3	Table 2/T1.115 MTP Signaling Link Availability	-			
3.4	Table 3/T1.115 MTP Signaling Link Utilization	-			
3.5	Table 4/T1.115 MTP Signaling Link Set and Route Set Availability	-			
3.6	Table 5/T1.115 MTP Signaling Point Status	-			
3.7	Table 6/T1.115 MTP Signaling Traffic Distribution (Signaling Route Utilization)	-			
3.8	Table 7/T1.115 SCCP Performance	-			
3.9	Table 8/T1.115 SCCP Subsystem Availability	-			
3.10	Table 9/T1.115 SCCP Utilization	-			
3.11	Table 10/T1.115 ISDN User Part Availability	-			
3.12 3.13	Table 11/T1.115 ISDN User Part Utilization	-			
3.14	Table 12/T1.115 ISDN User Part Performance / Stability	-			
3.15	Table 13/T1.115 ISDN User Part Circuit Availability	-			

*Table 6 Monitoring and Measurements for Networks, ANSI T1.115 - 1990*

References		C	N	P	Comments
3.16	Table 14/T1.115 ISDN User Part Connection Performance	-			
3.17	Table 15/T1.115 TCAP Availability	-			Note 13
3.18	Table 16/T1.115 TCAP Utilization			X	Note 14
3.19	Table 17/T1.115 TCAP Performance			X	Note 14, Note 15
4.	Operations and Maintenance Part Support	-			
5.	Uses of Measurements	-			
5.1	Introduction	X			
5.2	Operational Uses	-			
5.2.1	Message Transfer Part (MTP)	-			
5.2.1.1	Surveillance of Network Status	-			
5.2.1.2	Monitoring of Link and Network Traffic Performance	-			
5.2.2	Signaling Connection Control Part (SCCP)	-			
5.2.2.1	SCCP Routing Performance	-			
5.2.2.2	SCCP Availability	-			
5.2.3	Integrated Services Digital Network User Part - (ISDN-UP)	-			
5.2.3.1	ISDN-UP Performance	-			
5.2.3.2	ISDN-UP Availability	-			
5.2.4	Transaction Capabilities Application Part (TCAP)	-			
5.2.4.1	TCAP Availability	-			Note 13
5.2.4.2	TCAP Utilization			X	Note 16
5.3	Maintenance Uses	-			
5.3.1	Introduction	-			
5.3.2	Message Transfer Part (MTP)	-			
5.3.2.1	Detection of Increases in Link SU Error Rates	-			
5.3.2.2	Detection of Marginal Links Performance	-			
5.3.2.3	Detection of Link Failure Events in Either Performance	-			



*Table 6 Monitoring and Measurements for Networks, ANSI T1.115 - 1990*

References		C	N	P	Comments
5.3.2.4	Detection of Routing and Distribution Table Errors	-			
5.3.2.5	Component Reliability and Maintainability Studies	-			
5.3.3	Signaling Connection Control Part (SCCP)	-			
5.3.3.1	SCCP Routing Performance	-			
5.3.3.2	SCCP Availability	-			
5.3.4	Integrated Services Digital Network User Part - (ISDN-UP)	-			
5.3.4.1	ISDN-UP Stability	-			
5.3.4.2	ISDN-UP Connection Performance	-			
5.3.4.3	ISDN-UP Circuit Performance	-			
5.3.5	Transaction Capabilities Application Part (TCAP)	-			
5.3.5.1	TCAP Availability	-			Note 13
5.3.5.2	TCAP Protocol Errors			X	Note 15, Note 17
5.4	Administrative Uses	-			
5.4.1	Message Transfer Part (MTP)	-			
5.4.1.1	Monitoring of Link and Signaling Point Utilization	-			
5.4.2	Signaling Connection Control Part (SCCP)	-			
5.4.2.1	SCCP Utilization	-			
5.4.2.2	SCCP Routing Performance	-			
5.4.3	Integrated Services Digital Network User Part - (ISDN-UP)	-			
5.4.3.1	ISDN-UP Performance	-			
5.4.3.2	ISDN-UP Stability	-			
5.4.3.3	ISDN-UP Circuit Performance	-			
5.4.4	Transaction Capabilities Application Part (TCAP)	-			
5.4.4.1	TCAP Availability	-			Note 13
5.4.4.2	TCAP Utilization			X	Note 18
5.4.4.3	TCAP Protocol Errors			X	Note 15, Note 18

*Table 6 Monitoring and Measurements for Networks, ANSI T1.115 - 1990*

References		C	N	P	Comments
5.5	Preparation of Traffic Forecasts	-			
5.6	Network Planning	-			
5.7	Evaluation of Maintenance Force Effectiveness	-			
6.	Referenced Standards	-			
6.1	Referenced American National Standards	X			
6.2	Other Referenced Standards	X			

## 2.2 TCAP, ANSI T1.115 - 1990

### 2.2.1 T1.115 Monitoring and Measurements for Networks

*Table 7 Monitoring and Measurements for Networks, ANSI T1.115 - 1990*

References		C	N	P	Comments
1.	Scope, Purpose and Application	-			
1.1	Introduction	X			
1.2	Local and Global View	-			
1.3	Grouping of Measurements	-			
1.4	Guidelines for Uses of Measurements	-			
2.	Definition of Terms	-			
2.1	Operation	-			
2.1.1	<No heading>	X			
2.1.2	<No heading>	-			Note 11
2.1.3	<No heading>	-			Note 11
2.2	Maintenance	X			
2.3	Administration	-			
2.3.1	<No heading>	X			
2.3.2	<No heading>	X			
3.	Listing of Measurements	-			
3.1	General			X	Note 12
3.2	Table 1/T1.115 MTP Signaling Link Performance	-			



*Table 7 Monitoring and Measurements for Networks, ANSI T1.115 - 1990*

References		C	N	P	Comments
3.3	Table 2/T1.115 MTP Signaling Link Availability	-			
3.4	Table 3/T1.115 MTP Signaling Link Utilization	-			
3.5	Table 4/T1.115 MTP Signaling Link Set and Route Set Availability	-			
3.6	Table 5/T1.115 MTP Signaling Point Status	-			
3.7	Table 6/T1.115 MTP Signaling Traffic Distribution (Signaling Route Utilization)	-			
3.8	Table 7/T1.115 SCCP Performance	-			
3.9	Table 8/T1.115 SCCP Subsystem Availability	-			
3.10	Table 9/T1.115 SCCP Utilization	-			
3.11	Table 10/T1.115 ISDN User Part Availability	-			
3.12 3.13	Table 11/T1.115 ISDN User Part Utilization	-			
3.14	Table 12/T1.115 ISDN User Part Performance / Stability	-			
3.15	Table 13/T1.115 ISDN User Part Circuit Availability	-			
3.16	Table 14/T1.115 ISDN User Part Connection Performance	-			
3.17	Table 15/T1.115 TCAP Availability	-			Note 13
3.18	Table 16/T1.115 TCAP Utilization			X	Note 14
3.19	Table 17/T1.115 TCAP Performance			X	Note 14, Note 15
4.	Operations and Maintenance Part Support	-			
5.	Uses of Measurements	-			
5.1	Introduction	X			
5.2	Operational Uses	-			
5.2.1	Message Transfer Part (MTP)	-			
5.2.1.1	Surveillance of Network Status	-			
5.2.1.2	Monitoring of Link and Network Traffic Performance	-			

*Table 7 Monitoring and Measurements for Networks, ANSI T1.115 - 1990*

References		C	N	P	Comments
5.2.2	Signaling Connection Control Part (SCCP)	-			
5.2.2.1	SCCP Routing Performance	-			
5.2.2.2	SCCP Availability	-			
5.2.3	Integrated Services Digital Network User Part - (ISDN-UP)	-			
5.2.3.1	ISDN-UP Performance	-			
5.2.3.2	ISDN-UP Availability	-			
5.2.4	Transaction Capabilities Application Part (TCAP)	-			
5.2.4.1	TCAP Availability	-			Note 13
5.2.4.2	TCAP Utilization			X	Note 16
5.3	Maintenance Uses	-			
5.3.1	Introduction	-			
5.3.2	Message Transfer Part (MTP)	-			
5.3.2.1	Detection of Increases in Link SU Error Rates	-			
5.3.2.2	Detection of Marginal Links Performance	-			
5.3.2.3	Detection of Link Failure Events in Either Performance	-			
5.3.2.4	Detection of Routing and Distribution Table Errors	-			
5.3.2.5	Component Reliability and Maintainability Studies	-			
5.3.3	Signaling Connection Control Part (SCCP)	-			
5.3.3.1	SCCP Routing Performance	-			
5.3.3.2	SCCP Availability	-			
5.3.4	Integrated Services Digital Network User Part - (ISDN-UP)	-			
5.3.4.1	ISDN-UP Stability	-			
5.3.4.2	ISDN-UP Connection Performance	-			
5.3.4.3	ISDN-UP Circuit Performance	-			
5.3.5	Transaction Capabilities Application Part (TCAP)	-			





*Table 7 Monitoring and Measurements for Networks, ANSI T1.115 - 1990*

<b>References</b>		<b>C</b>	<b>N</b>	<b>P</b>	<b>Comments</b>
5.3.5.1	TCAP Availability	-			Note 13
5.3.5.2	TCAP Protocol Errors			X	Note 15, Note 17
5.4	Administrative Uses	-			
5.4.1	Message Transfer Part (MTP)	-			
5.4.1.1	Monitoring of Link and Signaling Point Utilization	-			
5.4.2	Signaling Connection Control Part (SCCP)	-			
5.4.2.1	SCCP Utilization	-			
5.4.2.2	SCCP Routing Performance	-			
5.4.3	Integrated Services Digital Network User Part - (ISDN-UP)	-			
5.4.3.1	ISDN-UP Performance	-			
5.4.3.2	ISDN-UP Stability	-			
5.4.3.3	ISDN-UP Circuit Performance	-			
5.4.4	Transaction Capabilities Application Part (TCAP)	-			
5.4.4.1	TCAP Availability	-			Note 13
5.4.4.2	TCAP Utilization			X	Note 18
5.4.4.3	TCAP Protocol Errors			X	Note 15, Note 18
5.5	Preparation of Traffic Forecasts	-			
5.6	Network Planning	-			
5.7	Evaluation of Maintenance Force Effectiveness	-			
6.	Referenced Standards	-			
6.1	Referenced American National Standards	X			
6.2	Other Referenced Standards	X			





### 3 Notes

- Note 1** Only point 2 is considered, use of TCAP between Exchanges and Network Service Centres.
- Note 2** Layered approach is used.
- Note 3** ASP is not used in the Ericsson AB implementation of ANSI-SS7.
- Note 4** Connectionless mode is used (Application Service Part (ASP) is not used).
- Note 5** N-COORD and N-TRAFFIC are not supported. N-NOTICE and N-STATE are partially supported (providing T-NOTICE-Ind and T-STATE-Ind respectively from TCAP to the user).
- Note 8** Parameter IDs are handled transparently by TCAP.
- Note 9** There is no support for connection-oriented services in the current ANSI specification. This is for further study in the ANSI standard.
- Note 10** ANSI specification does not define support for this feature. This is for further study in the ANSI standard.
- Note 11** Requires further study in the ANSI standard.
- Note 12** TCAP ANSI does not support timestamps for events that are reported on occurrence.
- Note 13** Unavailability measurements are architecturally dependent and therefore optional in the ANSI standard. Local SSN availability is reported.
- Note 14** TCAP ANSI provides the necessary alarms/statistics to generate these measures but does not generate them directly.
- Note 15** Measurements concerning Invoke Problems, Return Result Problem and Return Error Problem in item 17.2 are for further study in the ANSI standard.
- Note 16** This module provides the necessary alarms and statistics necessary for network monitoring but does not in itself provide network monitoring.



- Note 17** This module provides the basic alarms and statistics required for maintenance but does not in itself provide network maintenance.
- Note 18** This module provides the basic alarms and statistics required for administrative purposes but does not actively participate in system administration.
- Note 19** The Length of Contents element has a maximum length of three octets.
- Note 20** In case of UNKNOWN messages TCAP does not check any Transaction IDs. Such Unknown messages are simply discarded.



## 4 Glossary

<b>ANSI</b>	American National Standards Institute
<b>EIN</b>	Ericsson AB
<b>ETSI</b>	European Telecommunications Standards Institute
<b>ITU</b>	International Telecommunication Union





## 5 References

### ANSI Standard Recommendations

- [ANSI-1]** American National Standard for Telecommunications -  
Signaling System No. 7 (SS7) - Transaction Capabilities  
Application Part (TCAP)  
  
ANSI T1.114 - 2000
- [ANSI-2]** American National Standard for Telecommunications -  
Signaling System No. 7 (SS7) - Transaction Capabilities  
Application Part (TCAP)  
  
ANSI T1.114 - 1992
- [ANSI-3]** American National Standard for Telecommunications  
- Signaling System No. 7 (SS7) -Monitoring and  
Measurement for Networks  
  
ANSI T1.115 - 1990