

TCAP ITU/ ETSI/ TTC/ Chinese Chinese 1994

STATEMENT OF COMPLIANCE

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1 Introduction

This document describes how Ericsson Signaling Transaction Capabilities Application Part (TCAP) ITU / ETSI / TTC / Chinese version complies with the Chinese 1994 recommendations specified in Reference [6]. For reasons of clarity, compliance with the ITU-T (03/93) recommendations detailed in references Reference [1] - Reference [5] (upon which specification Reference [6] is based) is also described.

1.1 Concept

The terms that are used are:

C	The Ericsson signaling component complies with the specified section in RFC 2960+ Reference [1], Reference [2].
N	The Ericsson signaling component does not comply with the specified section in RFC 2960+ Reference [1], Reference [2].
P	The Ericsson signaling component complies partly with the specified section in RFC 2960+Reference [1]
-	There is nothing to implement in the referred section (always placed in column C).





2 Compliance Lists

2.1 TCAP, ITU-T Q.77X

2.1.1 ITU-T Q.771, Function Description of TCAP

Table 1 Compliance List, ITU-T Q.771

References		C	N	P	Co
1.	Introduction	-			
1.1	General	X			
1.2	Contents of the rec. Q771-Q.775	-			
1.3	Objectives	-			
1.3.1	Definition of Transaction Capabilities	X			
1.3.2	Scope of Transaction Capabilities	X			
2	Overview	-			
2.1	Terminology	X			
2.2	Structure of TC	-			
2.2.1	Architectural concepts	X			
2.2.2	Addressing issues	X			
2.2.3	Management aspects			X	No
2.2.4	Alignment of TCAP with Rec.X.219 and X.229 (ROSE)	X			
2.2.5	Alignment of TCAP with Rec. X.217 and X.227 (ACSE)	X			
2.3	TC based on a Connectionless Network Service	-			
2.3.1	Service provided by the Component sub-layer	-			
2.3.1.1	Component	X			
2.3.1.2	Dialogue	X			
2.3.1.2.1	Unstructured dialogue	X			
2.3.1.2.2	Structured Dialogue	X			
2.3.1.3	Component Correlation	X			
2.3.1.4	Error Handling	X			

Table 1 Compliance List, ITU-T Q.771

References		C	N	P	Comments
2.3.2	Service Provided by the Transaction Sub-Layer	X			
2.3.2.1	Unstructured Dialogue	X			
2.3.2.2	Structured Dialogue	X			
3.	Service provided by TC based on a connectionless network service	-			
3.1	Component sub-layer	-			
3.1.1	Overview of Component sub-layer primitives	X			
3.1.2	Dialogue handling	X			
3.1.2.1	Definition of parameters	X			
3.1.2.2	Dialogue facilities	X			
3.1.2.2.1	Unstructured dialogue	X			
3.1.2.2.2	Structured dialogue	X			
3.1.2.2.2.1	Beginning of a dialogue	X			
3.1.2.2.2.2	Confirmation of the dialogue	X			Note
3.1.2.2.2.3	Continuation of the dialogue	X			
3.1.2.2.2.4	End of a dialogue	X			Note
3.1.2.2.3	Exception Reporting and Message Return	X			
3.1.3	Component handling	-			
3.1.3.1	Definition of parameters	X			
3.1.3.2	Operation invocation	X			
3.1.3.3	Report of success	X			Note
3.1.3.4	Report of failure	X			
3.1.3.5	Reject by the TC-user	X			
3.1.3.6	Cancel of an operation	X			
3.1.3.7	Reset of an Operation Invocation	X			
3.1.3.8	Grouping of components inside a Message	X			
3.1.4	Abnormal situations	-			
3.1.4.1	Reject of a component by the Component sub-layer	X			
3.1.4.2	Dialogue abort	X			



Table 1 Compliance List, ITU-T Q.771

References		C	N	P	Co
3.1.5	Component states and state transition diagrams			X	No
3.1.6	Mapping of Component sub-layer onto Transaction sub-layer	X			
3.2	Transaction sub-layer	-			
3.2.1	Overview of the Transaction sub-layer primitives	X			
3.2.2	Information transfer in unstructured dialogue	X			
3.2.3	Transaction begin	X			
3.2.4	Transaction continuation	-			
3.2.4.1	Confirmation of the transaction	X			No
3.2.4.2	Continuation of the transaction	X			
3.2.4.3	State transitions	X			
3.2.5	Transaction end	X			No
3.2.5.1	Pre-arranged end	X			
3.2.5.2	Basic end	X			
3.2.5.3	Transaction abort by the TR-user	X			
3.2.6	Abnormal situations	-			
3.2.6.1	Abort by the Transaction sub-layer	X			
3.2.7	Exception Reporting and Message Return	X			
3.3	Services assumed from the connectionless network layer	X			

2.1.2 ITU-T Q.772, TCAP Information Element Definitions

Table 2 Compliance List,, ITU-T Q.772

References		C	N	P	Comments
1.	General	X			
2.	Transaction portion	-			
2.1	Message type	-			
2.1.1	Unidirectional	X			
2.1.2	Begin	X			
2.1.3	End	X			

Table 2 Compliance List,, ITU-T Q.772

References		C	N	P	Comments
2.1.4	Continue	X			
2.1.5	Abort	X			
2.2	Transaction IDs	X			
2.2.1	Originating Transaction ID	X			
2.2.2	Destination Transaction ID	X			
2.3	P-abort Cause	X			
2.3.1	Unrecognized Message Type	X			
2.3.2	Unrecognized Transaction ID	X			
2.3.3	Badly Formatted Transaction Portion	X			
2.3.4	Incorrect Transaction Portion	X			
2.3.5	Resource Limitation	X			
2.4	Dialogue Portion	X			
2.5	Component Portion	X			
3.	Component Portion	X			
3.1	Component type	X			
3.1.1	Invoke	X			
3.1.2	Return Result (not last)	X			
3.1.3	Return Result (last)	X			
3.1.4	Return Error	X			
3.1.5	Reject	X			
3.2	Invoke ID	X			
3.3	Linked ID	X			
3.4	Operation Code	X			
3.5	Parameter	X			
3.6	Error Code	X			
3.7	Problem Code	X			
3.7.1	General Problem	X			
3.7.1.1	Unrecognized Component	X			
3.7.1.2	Mistyped Component	X			
3.7.1.3	Badly Structured Component	X			
3.7.2	Invoke Problem	X			
3.7.2.1	Duplicate Invoke ID	X			



Table 2 Compliance List,, ITU-T Q.772

References		C	N	P	Comments
3.7.2.2	Unrecognized Operation	X			
3.7.2.3	Mistyped Parameter	X			
3.7.2.4	Resource Limitation	X			
3.7.2.5	Initiating Release	X			
3.7.2.6	Unrecognized Linked ID	X			
3.7.2.7	Linked Response Unexpected	X			
3.7.2.8	unexpected linked operation	X			
3.7.3	Return Result Problem	X			
3.7.3.1	Unrecognized Invoke ID	X			
3.7.3.2	Return Result Unexpected	X			
3.7.3.3	Mistyped Parameter	X			
3.7.4	Return Error Problem	X			
3.7.4.1	Unrecognized Invoke ID	X			
3.7.4.2	Return Error Unexpected	X			
3.7.4.3	Unrecognized Error	X			
3.7.4.4	Unexpected Error	X			
3.7.4.5	Mistyped Parameter	X			
4.	Dialogue Portion	X			
4.1	Dialogue Control APDUs	X			
4.1.1	Dialogue Request (AARQ) APDU	X			
4.1.2	Dialogue Response (AARE) APDU	X			
4.1.3	Dialogue Abort (ABRT) APDU	X			
4.1.4	Dialogue Uni (AUDT) APDU	X			
4.2	Dialogue Portion Information Elements	-			
4.2.1	Application Context Name	X			
4.2.2	Protocol Version	X			
4.2.3	User Information	X			
4.2.4	Result	X			
4.2.5	Result Source Diagnostic	X			
4.2.6	Abort Source	X			

2.1.3 ITU-T Q.773, TCAP Formats and Encoding

Table 3 ITU-T Q.773, TCAP Formats and Encoding

References		C	N	P	Comments
1.	Introduction	X			
2.	Description conventions	-			
3.	Abstract Syntax Description	-			
3.1	TC-Messages	X			
3.2	Dialogue Portion	X			
3.2.1	Structured Dialogue	X			
3.2.2	Unstructured Dialogue	X			
4	.Message representation	X			
4.1	Encoding rules	-			
4.1.1	Specification of Encoding rules	X			
4.1.2	Overview of Encoding Rules	-			
4.1.2.1	General message structure	X			
4.1.2.2	Tag	X			
4.1.2.2.1	Tag class	X			
4.1.2.2.2	From of the element	X			
4.1.2.2.3	Tag code	X			
4.1.2.3	Length of the Contents	X			Note 9
4.1.2.4	Contents	X			
4.1.3	Transmission order	X			
4.2	Message Encoding	-			
4.2.1	Transaction Portion	X			
4.2.1.1	Structure of the Transaction Portion	X			
4.2.1.2	Message Type Tag	X			
4.2.1.3	Transaction ID tags	X			
4.2.1.4	P-Abort Cause tag	X			
4.2.1.5	Dialogue Portion tag	X			
4.2.1.6	Component Portion tag	X			
4.2.2	Component Portion	X			
4.2.2.1	Component type tag	X			
4.2.2.2	Component ID tag	X			
4.2.2.3	Operation Code tag	X			



Table 3 ITU-T Q.773, TCAP Formats and Encoding

References		C	N	P	Comments
4.2.2.4	Parameter tag	X			
4.2.2.5	Error Code tag	X			
4.2.2.6	Problem Code	X			
4.2.3	Dialogue Portion	X			
4.2.3.1	Dialogue Control PDUs	X			

2.1.4 ITU-T Q.774, TCAP Procedures

Table 4 Compliance List,, ITU-T Q.774

References		C	N	P	Co
1.	Introduction	X			
1.1	Basic guideline	X			
1.2	Overview	-			
2.	Addressing	X			
3.	Transaction capabilities based on a connectionless network service	-			
3.1	Sub-layering in TCAP	X			
3.2	Component sub-layer procedures	X			
3.2.1	Normal procedure	-			
3.2.1.1	Component handling procedure	-			
3.2.1.1.1	Mapping of TC component handling service primitives to component types	X			
3.2.1.1.2	Management of invoke IDs			X	No
3.2.1.1.3	Operation classes			X	No
3.2.1.1.4	Sample component flows	X			
3.2.1.2	Dialogue control via TC primitives	X			No
3.2.2	Abnormal procedures	-			
3.2.2.1	Dialogue control	X			
3.2.2.2	Abnormal procedures relating to operations	X			
3.2.3	Compatibility issues	X			
3.3	Transaction sub-layer procedures	-			
3.3.1	General	X			

Table 4 Compliance List,, ITU-T Q.774

References		C	N	P	Comments
3.3.2	Mapping of TR service primitives to message types	X			
3.3.3	Normal procedures	-			
3.3.3.1	Message transfer without establishing a transaction	-			
3.3.3.1.1	Actions of sending end	X			
3.3.3.1.2	Actions of the receiving end	X			
3.3.3.2	Message transfer within a transaction	-			
3.3.3.2.1	Transaction begin	X			
3.3.3.2.1.1	Actions of the initiating end	X			
3.3.3.2.1.2	Actions of the receiving end	X			
3.3.3.2.2	Transaction continuation	X			
3.3.3.2.3	Transaction termination	X			
3.3.3.2.4	Abort by the TR-user	X			
3.3.3.2.5	Example of message exchange	X			
3.3.3.2.6	Transaction state transition diagrams	X			
3.3.4	Abnormal procedures relating to transaction control	X			

2.1.5 ITU-T Q.775, Guidelines for Using TCAP

Table 5 Compliance List,, ITU-T Q.775

References		C	N	P	Comments
1.	Introduction	-			
1.1	General	X			
1.2	Environment	X			
2.	Operations	-			
2.1	Definition			X	Note 13
2.2	Examples	-			
2.2.1	Simple operation handlings	X			
2.2.2	More complex operation handling	X			
2.3	Component-related facilities offered to TC-users	-			



Table 5 Compliance List,, ITU-T Q.775

References		C	N	P	Comments
2.3.1	Invocation			X	Note 13
2.3.2	Cancel (by the TC-user)	X			
2.3.3	Reject (by the TC-user)	X			
2.3.4	Remote cancel (by the TC-user)	X			Note 10
2.4	Component-related abnormal situations	-			
2.4.1	Component loss	X			
2.4.2	Component duplication	X			
2.4.3	Component missequencing	X			
2.4.4	Reject of a component by TCAP	X			
2.4.5	Operation timer expiry	X			
3.	Dialogues	X			
3.1	Grouping of components in a message	X			
3.2	Dialogue handling facilities	X			
3.2.1	Structured dialogue	-			
3.2.1.1	General	X			
3.2.1.2	Exchange of messages	X			
3.2.1.3	Dialogue end	X			
3.2.1.4	Message-related abnormal situations	X			
3.2.1.5	Relations between dialogue and component handling	X			
3.2.1.6	Addressing issues	X			
3.2.1.7	Quality of Service	X			
3.2.2	Unstructured dialogue	X			
3.3	Enhanced dialogue control facilities	-			
3.3.1	Overview	X			
3.3.2	Use of the Application-Context	X			
3.3.3	Use of user data			X	Note 14
3.3.4	Backward compatibility issues	X			
4.	Guidance for writing TC-users protocol specifications	-			Note 11
4.1	Introduction	-			Note 11

Table 5 Compliance List,, ITU-T Q.775

References		C	N	P	Comments
4.2	Decomposition of functionality	-			Note 11
4.3	How to specify an application context	-			Note 11
4.4	How to specify an ASE	-			Note 11
4.5	How to specify Operations and Errors	-			
4.5.1	General considerations	-			Note 11
4.5.2	Use of the OPERATION MACRO notation	-			
4.5.2.1	Use of the type notation	-			Note 11
4.5.2.1.1	Specification of the operation argument	-			Note 11
4.5.2.1.2	Specification of positive outcomes	-			Note 11
4.5.2.1.3	Associated Errors	-			Note 11
4.5.2.1.4	Specification of linked operations	-			Note 11
4.5.2.2	Use of the value notation	-			Note 11
4.5.2.3	Specification of timers	-			Note 11
4.5.3	Use of the ERROR MACRO notation	-			Note 11
4.5.4	Examples of Operations and Errors descripton	-			Note 11
4.5.4.1	Operation and Errors purosos	-			
4.5.4.1.1	Provide routing information	-			Note 11
4.5.4.1.2	Get calling party number	-			Note 11
4.5.4.1.3	Invalid called number	-			Note 11
4.5.4.1.4	Subscriber not reachable	-			Note 11
4.5.4.1.5	Called barred	-			Note 11
4.5.4.1.6	Calling party number not available	-			Note 11
4.5.4.1.7	Processing failure	-			Note 11
4.5.4.2	ASN.1 specification	-			Note 11
4.5.5	Use of ASN.1 modules	-			Note 11
4.5.6	Allocation and Management of Operation and Error Codes	-			
4.5.6.1	General considerations	-			Note 11



Table 5 Compliance List,, ITU-T Q.775

References		C	N	P	Comments
4.5.6.2	Import and Export of Operations and Errors	-			Note 11
4.5.6.3	Impact of ASE/AE structure on operation and error code administration	-			Note 11
4.5.6.3.1	Monolithic approach - One AC, one ASE	-			Note 11
4.5.6.3.2	One AC comprising more than one ASE	-			Note 11
4.5.6.4	Re-use of operation and errors	-			Note 11
4.6	Data types specifications	-			Note 11
4.6.1	General				Note 11
4.6.2	Use of tags	-			Note 11
4.6.3	Instances and types	-			Note 11
4.6.4	Exporting and importing data types	-			Note 11
4.7	How to specify abstract syntaxes	-			Note 11
4.8	Encoding rules	-			Note 11

2.2 TCAP, ITU-T Q.75X

2.2.1 ITU-T Q.752, Monitoring and Measurements

Table 6 Compliance List,, ITU-T Q.752

Reference		C	N	P	Comments
1.	Introduction	-			
1.1	General	-			
1.2	Network view	-			
1.3	Guidelines for uses of measurements	-			
1.4	Grouping of measurements			X	Note 1, Note 3
1.5	Collection of measurements	-			
1.6	Definition of terms	-			
1.6.1	Fault			X	Note 2
1.6.2	Configuration	X			
1.6.3	Performance	X			

Table 6 Compliance List,, ITU-T Q.752

Reference		C	N	P	Comments
1.6.4	Accounting	-			Note 3
1.6.5	Network Administration and Planning	X			
1.6.6	Near-Real-Time Measurements	X			
1.7	Listing of Measurements	-			
1.7.1	General	-			
1.7.1.1	<no heading>	-			
1.7.1.2	<no heading>	-			
1.7.1.3	<no heading>	-			
1.7.1.4	<no heading>	-			
1.7.1.5	<no heading>	-			
1.7.1.6	<no heading>	-			
1.7.1.7	<no heading>	-			
1.7.2	Intervals for measurements		X		Note 2
1.8	Techniques for filtering measurements	X			
2.	MTP monitoring and measurements	-			
2.1	General	-			
2.2	Table 1	-			
2.3	Table 2	-			
2.4	Table 3	-			
2.5	Table 4	-			
2.6	Table 5	-			
2.7	Table 6	-			
3.	SCCP monitoring and measurements	-			
3.1	General	-			
3.2	Table 7	-			
3.3	Table 8	-			
3.4	Table 9	-			
3.5	Table 9 bis	-			
4.	ISDN-UP monitoring and measurements	-			



Table 6 Compliance List,, ITU-T Q.752

Reference		C	N	P	Comments
4.1	General	-			
4.2	Table 10	-			
4.3	Table 11	-			
4.4	Table 12	-			
5.	TC monitoring and measurements	-			
5.1	General	-			
5.2	Table 13				
	Table 13.1			X	Note 4
	Table 13.2			X	Note 4
	Table 13.3			X	Note 4
	Table 13.4			X	Note 4
	Table 13.5	-			
	Table 13.6		X		
	Table 13.7		X		
	Table 13.8	-			
	Table 13.9		X		
	Table 13.10		X		
	Table 13.11		X		
5.3	Table 14				
	Table 14.1			X	Note 2, Note 6
	Table 14.2	X			
	Table 14.3	X			
	Table 14.4			X	Note 2, Note 7
	Table 14.5			X	Note 2, Note 7
	Table 14.6			X	Note 2, Note 7
	Table 14.7		X		
	Table 14.8	X			
	Table 14.9	-			
	Table 14.10		X		
	Table 14.11	X			
	Table 14.12			X	Note 4
6.	Uses of measurements	-			

Table 6 Compliance List,, ITU-T Q.752

Reference		C	N	P	Comments
6.1	Introduction	-			
6.2	Message transfer part (MTP)	-			
6.2.1	Fault and configuration management measurements	-			
6.2.2	MTP performance	-			
6.3	Signaling connection control part (SCCP)	-			
6.3.1	SCCP fault management	-			
6.3.2	SCCP configuration management	-			
6.3.3	SCCP performance	-			
6.4	Integrated services digital network user part (ISDN-UP)	-			
6.4.1	Fault and configuration management	-			
6.4.2	ISDN-UP performance	-			
6.5	Transaction Capabilities (TC)	-			
6.5.1	TC fault management measurements	X			
6.5.2	TC performance			X	Note 5
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	-			
7.1	General	-			
7.2	MTP traffic registration	-			
7.2.1	Basic registration principles	-			
7.2.2	Limitations	-			
7.3	SCCP traffic registration	-			
7.4	Basic registration principles	-			
7.5	Limitations	-			



Table 6 Compliance List,, ITU-T Q.752

Reference		C	N	P	Comments
A.	TC: Fault Measurements pertinent to development of TC and its users	-			
A.1	Table A.1			X	Note 15

2.3 Technical Specification of Chinese TCAP

The paragraph numbers given in the tables in sections Section 2.3.1 on page 17–Section 2.3.4 on page 17 refer to the changed sections of the modified ITU-T specifications.

2.3.1 Q.771 Functional Description of TC

The Chinese specification is the same as the ITU-T specification Reference [1], except for those parts listed in the table below.

Table 7 Q.771, Parts Unique for Chinese Specification

References		C	N	P	Comments
1 — 2	1 - 2 Introduction	-			Note 14
2.2	2.2 Structures of TC	-			Note 14
2.2.2	2.2.2 Addressing Issues	-			Note 14

2.3.2 Q.772 Transaction Capabilities Information Element Definition

The Chinese specification is the same as the ITU-T specification Reference [2].

2.3.3 Q.773 Transaction Capabilities Formats and Encoding

The Chinese specification is the same as the ITU-T specification Reference [3].

2.3.4 Q.774 Transaction Capabilities Procedures

The Chinese specification is the same as the ITU-T specification Reference [4], except for those parts listed in the table below.

Table 8 Q.774, Parts Unique for Chinese Specification

References		C	N	P	Comments
2.	Addressing	-			Note 14
3.2	Abnormal Procedures	-			Note 14





3 Notes

- Note 1** TCAP ITU / ETSI / TTC / Chinese supports the definition of most of the specified groups, but does not group the raw measurements together.
- Note 2** Faults are reported on each occurrence.
- Note 3** Accounting measurements are for further study in the ITU-T standard.
- Note 4** Segmentation is not supported in TCAP ITU / ETSI / TTC / Chinese; all segmentation or reassembly must be performed by the TC-user.
- Note 5** TCAP ITU / ETSI / TTC / Chinese provides the raw measurements necessary to calculate these statistics.
- Note 6** No measurements in table 14.1, section 5.3(Q.752) are logged per destination address.
- Note 7** No measurements in table 14.4 through 14.6, section 5.3(Q.752) are logged per destination address. The address may instead be obtained from the alarms raised by TCAP ITU / ETSI / TTC / Chinese which are logged on every occurrence.
- Note 8** The supported management primitives requires that the information is directed to a specific subsystem. It is up to SCCP to send the information to each and every subsystem that is to be informed.
- Note 9** The Length of Contents element has a maximum length of 3 octets.
- Note 10** The Remote Cancel by the TC-user is applicable to the TC-user only.
- Note 11** Applicable to the TC-user only.
- Note 12** States 'Wait for Reject' and 'Reject Pending' are not implemented in TCAP ITU / ETSI / TTC / Chinese.
- Note 13** Invoke IDs may be reallocated immediately on return of the corresponding Invocation State Machine to the Idle State.
- Note 14** TCAP ITU / ETSI / TTC / Chinese checks for a Sequence of Externals in User Information but not the format of data within each External. Of descriptive value only.



Note 15 Compare with this report of section 5.3(Q.752) for details.

Note 16 Additional change of originating address according to the standard 3G TS 23.006 (Support of Mobile Number Portability) also supported



4 Glossary

ETSI	European Telecommunications Standards Institute
ITU	International Telecommunication Union
TCAP	Transaction Capabilities Application Part
TTC	Telecommunications Technology Committee





Reference List

ITU Standards

- [1] ITU-T Q.771 (03/93), Signaling System No.7 - Function Description of Transaction Capabilities
- [2] ITU-T Q.772 (03/93), Signaling System No.7 - Transaction Capabilities Information Element Definitions
- [3] ITU-T Q.773 (03/93), Signaling System No.7 - Transaction Capabilities Formats and Encoding
- [4] ITU-T Q.774 (03/93), Signaling System No.7 - Transaction Capabilities Procedures
- [5] ITU-T Q.775 (03/93), Signaling System No.7 - Guidelines for Using Transaction Capabilities

Chinese Standard Recommendations

- [6] Technical Specification of TCAP, Directorate General of Telecommunication of Ministry of Posts and Telecommunication P.R.C., 1994.10