

ISUP TTC

TTC 1997

STATEMENT OF COMPLIANCE

Copyright

© Ericsson AB 2001, 2011 – 2012. All rights reserved. No part of this document may be reproduced in any form without the written permission of the copyright owner.

Disclaimer

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. Ericsson shall have no liability for any error or damage of any kind resulting from the use of this document.



Contents

1	General	1
1.1	Introduction	1
1.2	Concept	1
2	COMPLIANCE LISTS	3
2.1	Integrated Services Digital Network (ISDN) User Part, TTC-1997	3
2.1.1	JT-Q.761, Functional Description of the Integrated Services Digital Network (ISDN) User Part	3
2.1.2	JT-Q.762, General Function of Messages and Signals	9
2.1.3	JT-Q.763, Formats and Codes	26
2.1.4	JT-Q.764, Signalling Procedures	34
2.1.5	Q.730 ISDN Supplementary Services	49
2.2	Monitoring and Measurements for SS7 Networks, ITU Q.752 - 1997	52
3	Notes and Comments	61
	Reference List	65





1 General

1.1 Introduction

This document describes how Ericsson SS7 ISUP TTC complies with the TTC 1997 recommendations specified in Reference [7] - Reference [10]. For reasons of clarity, compliance with the ITU-T (09/97) recommendations detailed in references Reference [1] -Reference [6] (upon which specifications Reference [7] - Reference [10] is based) is also described.

1.2 Concept

C	EIN module complies with the specified paragraph in the standard.
N	EIN module does not comply with the specified paragraph in the standard.
P	EIN 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.
-	There is nothing to implement in the referred paragraph (used in column "C").





2 COMPLIANCE LISTS

2.1 Integrated Services Digital Network (ISDN) User Part, TTC- 1997

2.1.1 JT-Q.761, Functional Description of the Integrated Services Digital Network (ISDN) User Part

Table 1

References	C	N	P	Comments
1 General			X	Note1 Page 61
2 Introduction to ISUP signalling procedures				Title
2.1 Address signalling			X	Note2 Page 61
2.2 Basic procedures	X			
2.3 Signalling methods			X	Note 3 Page 61
2.4 Interworking				Title
2.4.1 ISUP interworking	X			
2.4.2 Interworking with other signalling systems or user parts	-			
3 Capabilities supported by the ISUP (Table 1)				Title
Basic call				Title
Speech/3.1 kHz audio	X			
64 kbits/s unrestricted	X			

Table 1

References	C	N	P	Comments
Multirate connection types (\> 64 kbits/s)		X		
N x 64 kbit/s connection types	X			
En bloc address signalling	X			
Overlap address signalling	-			
Transit network selection	X			
Continuity check	X			
Forward transfer	X			
Suspend and resume	X			
Signalling procedures for connection type allowing fallback capability	X			Note 4 Page 61
Enhanced echo control signalling procedures		X		
Simplified echo control signalling procedures		X		
Automatic repeat attempt	X			
Blocking and unblocking of circuits and circuit groups	X			
Circuit group query	X			
Dual seizure	X			
Transmission alarm handling for digital inter-exchange circuits		X		



Table 1

References	C	N	P	Comments
Reset of circuits and circuit groups	X			
Receipt of unreasonable signalling information	X			
Compatibility procedure	X			Note 5 Page 61
Simple segmentation	X			
Propagation delay determination procedure	X			Note 4 Page 61
Tones and announcements	X			Note 4 Page 61
MTP pause and resume	X			
Access delivery information	X			Note 4 Page 61
Transportation of User teleservice information	X			Note 4 Page 61
Temporary trunk blocking		X		
ISDN User Part signalling congestion control	X			
Automatic congestion control	X			
Interaction between ISUP and INAP		X		
Unequipped circuit identification control	X			
Overlength messages	X			

Table 1

References	C	N	P	Comments
Temporary Alternative Routing (TAR)		X		
Hop counter procedure			X	
Collect call request procedure			X	
ISDN user part availability control		X		
Generic signalling procedures for supplementary services				Title
End-to-end signalling - Pass along method	-			
End-to-end signalling - SCCP Connection Oriented	-			
End-to-end signalling - SCCP Connectionless	-			
Generic number transfer	X			Note 4 Page 61
Generic digit transfer	X			Note 4 Page 61
Generic notification procedure	X			Note 4 Page 61
Simple service activation procedure	X			Note 4 Page 61
Remote operations procedure	X			Note 4 Page 61
Network specific procedures	X			Note 4 Page 61
Supplementary services				Title
DDI	X			Note 4 Page 61



Table 1

References	C	N	P	Comments
MSN	X			Note 4 Page 61
CLIP/CLIR	X			Note 4 Page 61
COLP/COLR	X			Note 4 Page 61
MCID	X			Note 4 Page 61
Sub-addressing	X			Note 4 Page 61
Terminal portability	X			Note 4 Page 61
Call forwarding	X			Note 4 Page 61
Call deflection	X			Note 4 Page 61
Explicit Call Transfer		X		
Call waiting	X			Note 4 Page 61
Call hold	X			Note 4 Page 61
Completion of Calls to Busy Subscriber		X		
Conference calling	X			Note 4 Page 61
Three party service	X			Note 4 Page 61
CUG	X			Note 4 Page 61
MLPP	X			Note 4 Page 61
Global Virtual Network Service (GVNS)		X		
International telecommunication charge card (ITCC)		X		
Reverse charging		X		
UUS, Service 1 (implicit)	X			Note 4 Page 61
UUS, Service 1 (explicit)	X			Note 4 Page 61
UUS, Service 2	X			Note 4 Page 61

Table 1

References	C	N	P	Comments
UUS, Service 3	X			Note 4, 6 Page 61
3.1 Internationally applicable class	X			
3.2 National use class	X			
4 Services assumed from the MTP				Title
4.1 General	X			
4.2 Description of primitives	X			
4.2.1 Transfer	X			
4.2.2 Pause	X			
4.2.3 Resume	X			
4.2.4 Status	X			
5 End-to-end signalling	-			Title
5.1 General	-			
5.2 SCCP method of end-to-end signalling	-			
5.3 Pass-along method of end-to-end signalling	-			
6 Future enhancements and Compatibility procedure	X			
6.1 Version compatibility	X			Note 3 Page 61
6.2 Additional coding guidelines for compatibility of ISDN User Parts				Title



Table 1

References	C	N	P	Comments
6.2.1 Messages	X			
6.2.2 Parameters	X			Note 5 Page 61

2.1.2 JT-Q.762, General Function of Messages and Signals

Table 2

Reference	C	N	P	Comments
General	-			
2 Signalling messages				
2.1 Address complete message (ACM)	X			
2.2 Answer message (ANM)	X			
2.3 Blocking message (BLO)	X			
2.4 Blocking acknowledgment message (BLA)	X			
2.5 Call progress message (CPG)	X			
2.6 Charge information message (CRG)	-			Note 4 Page 61 Note 36 Page 63
2.7 Circuit group blocking message (CGB)	X			
2.8 Circuit group blocking acknowledgment message (CGBA)	X			
2.9 Circuit group reset message (GRS)	X			

Table 2

Reference	C	N	P	Comments
2.10 Circuit group reset acknowledgement message (GRA)	X			
2.11 Circuit group unblocking message (CGU)	X			
2.12 Circuit group unblocking acknowledgement message (CGUA)	X			
2.13 Circuit group query message (CQM) (national use)			X	Note 8 Page 61
2.14 Circuit group query response message (CQR) (national use)			X	Note 8 Page 61
2.15 Confusion message (CFN)	X			
2.16 Connect message (CON)	X			
2.17 Continuity message (COT)	X			
2.18 Continuity check request message (CCR)	-			
2.19 Facility accepted message (FAA)	-			Note 10 Page 61
2.20 Facility message (FAC) (national use)	X			Note 4 Page 61 Note 11 Page 61
2.21 Facility reject message (FRJ)	-			



Table 2

Reference	C	N	P	Comments
2.22 Facility request message (FAR)	-			Note 12 Page 61
2.23 Forward transfer message (FOT)	-			Note 10 Page 61
2.24 Identification request message (IDR)	-			Note 4 Page 61 Note 11 Page 61
2.25 Identification response message (IRS)	-			Note 4 Page 61 Note 11 Page 61
2.26 Information message (INF) (national use)	-			Note 13 Page 61
2.27 Information request message (INR) (national use)	-			Note 13 Page 61
2.28 Initial address message (IAM)	X			
2.29 Loop back acknowledgement message (LPA) (national use)	-			
2.30 Loop Prevention (LOP)		X		
2.31 Network resource management message (NRM)	-			Note 4 Page 61 Note 11 Page 61
2.32 Overload message (OLM) (national use)	-			Note 14 Page 61
2.33 Pass-along message (PAM)	-			
2.34 Release message (REL)	X			

Table 2

Reference	C	N	P	Comments
2.35 Release complete message (RLC)	X			
2.36 Reset circuit message (RSC)	X			
2.37 Resume message (RES)	X			
2.38 Segmentation message (SGM)	X			
2.39 Subsequent address message (SAM)	-			Note 14 Page 61
2.40 Suspend message (SUS)	X			
2.41 Unblocking message (UBL)	X			
2.42 Unblocking acknowledgment message (UBA)	X			
2.43 Unequipped circuit identification code message (UCIC) (national use)	-			
2.44 User part available message (UPA)	-			
2.45 User part test message (UPT)	-			
2.46 User-to-user information message (USR)	-			
2.47 Charge (CHG)	X			Note 36 Page 63
3 Signalling parameters			X	Note 15 Page 62



Table 2

Reference	C	N	P	Comments
3.1 Access delivery indicator			X	
3.2 Access transport	X			
3.3 Automatic congestion level	X			
3.4 Backward call indicators	X			
3.5 Backward GVNS	-			
3.6 Call diversion information	-			
3.7 Call diversion treatment indicators	-			
3.8 Call history information	-			
3.9 Call offering treatment indicators	-			
3.10 Call reference	-			
3.11 Call transfer number	-			
3.12 Call transfer reference	-			
3.13 Called IN number			X	
3.14 Called party number	X			
3.15 Calling party number	X			
3.16 CCSS			X	
3.17 Calling party\qs category	X			
3.18 Cause values	X			



Table 2

Reference	C	N	P	Comments
3.19 Charged party indicator identification	-			
3.20 Circuit assignment map	-			
3.21 Circuit group supervision message type indicator	X			
3.22 Circuit state indicator	X			Note 8 Page 61
3.23 Closed user group interlock code	X			
3.24 Collect call request	-			
3.25 Conference treatment indicators	-			
3.26 Connected number	X			
3.27 Connection request	-			
3.28 Continuity indicators	X			
3.29 Correlation id			X	
3.30 Display information	-			
3.31 Echo control information	-			
3.32 End information transmission	X			
3.33 End of optional parameters	X			
3.34 Event information	X			



Table 2

Reference	C	N	P	Comments
3.35 Facility indicator	-			
3.36 Forward call indicators	X			
3.37 Forward GVNS	-			
3.38 Generic digits (national use)		X		
3.39 Generic notification	X			
3.40 Generic number	X			
3.41 Generic reference (reserved)	-			
3.42 Hop counter	-			
3.43 Information indicators	-			
3.44 Information request indicators	-			
3.45 Location number	-			
3.46 Loop prevention indicators		X		
3.47 MCID request indicator	-			
3.48 MCID response indicator	-			
3.49 Message Area Information	X			
3.50 Message compatibility information	X			
3.51 MLPP precedence	-			

Table 2

Reference	C	N	P	Comments
3.52 Nature of connection indicators	X			
3.53 Network management controls	-			
3.54 Network specific facilities (national use)		X		
3.55 Optional backward call indicators	X			
3.56 Optional forward call indicators	X			
3.57 Original called number	X			
3.58 Origination ISC point code	-			
3.59 Parameter compatibility information parameter	X			
3.60 Propagation delay counter	-			
3.61 Range and status	X			
3.62 Redirect capability				
3.63 Redirect counter				
3.64 Redirecting number	X			
3.65 Redirection information	X			
3.66 Redirection number	X			
3.67 Redirection number restriction indicator	-			



Table 2

Reference	C	N	P	Comments
3.68 Remote operations (national use)	-			
3.69 SCF id		X		
3.70 Service activation parameter (national use)	-			
3.71 Signalling point code (national use)	X			
3.72 Subsequent number	-			
3.73 Suspend/Resume indicator	X			
3.74 Transit network selection (national use)	X			
3.75 Transmission medium requirement	X			
3.76 Transmission medium requirement prime	-			
3.77 Transmission medium used	-			
3.78 UID action indicators		X		
3.79 UID capability indicators			X	
3.80 User service information	X			
3.81 User service information prime	-			
3.82 User teleservice information	X			

Table 2

Reference	C	N	P	Comments
3.83 User-to-user indicators	X			
3.84 User-to-user information	X			
3.85 Additional party's category		X		
3.86 Applied congestion control criteria information		X		
3.87 Carrier Information transfer		X		
3.88 Cause of no ID		X		
3.89 Charge area information	X			
3.90 Charge information	X			
3.91 Charge information type	X			
3.92 Charge Information delay		X		
3.93 Contractor number		X		
3.94 Mobile communication's end information transfer		X		
3.95 Mobile communication's call reference		X		
3.96 National redirection reason		X		
3.97 Network function type	X			
3.98 Personal Station Number		X		



Table 2

Reference	C	N	P	Comments
4 Parameter information			X	
4.1 Access delivery indicator	X			
4.2 Address presentation restricted indicator	X			
4.3 Address signal	X			
4.4 Binary code		X		
4.5 Call diversion may occur indicator	X			
4.6 Call identity		X		
4.7 Call to be offered indicator		X		
4.8 Call to be offered indicator		X		
4.9 Called party category indicator	X			
4.10 Called party status indicator	X			
4.11 Calling party address request indicator		X		
4.12 Calling party address response indicator		X		
4.13 Calling party\qs category request indicator		X		
4.14 Calling party\qs category response indicator		X		



Table 2

Reference	C	N	P	Comments
4.15 Cause value	X			
4.16 CCSS call indicator	X			
4.17 Charge indicator	X			
4.18 Charge information request indicator (national use)		X		Note 13 Page 61
4.19 Charge information response indicator (national use)		X		Note 13 Page 61
4.20 Circuit identification code	X			
4.21 Closed user group call indicator	X			
4.22 Coding standard	X			
4.23 Component ID tag		X		
4.24 Component type		X		
4.25 Component type tag		X		
4.26 Conference acceptance indicator		X		
4.27 Connected line identity request indicator	X			
4.28 Continuity check indicator	X			
4.29 Credit		X		
4.30 Diagnostic	X			



Table 2

Reference	C	N	P	Comments
4.31 Discard message indicator	X			
4.32 Discard parameter indicator	X			
4.33 Echo control device indicator	X			
4.34 Encoding scheme		X		
4.35 End-to-end information indicator	X			
4.36 End-to-end method indicator	X			
4.37 Error code	X			
4.38 Event indicator	X			
4.39 Event presentation restricted indicator	X			
4.40 Extension indicator	X			
4.41 GVNS user group identification		X		
4.42 Feature code		X		
4.43 Filler	X			
4.44 Holding indicator (national use)	X			Note 13 Page 61
4.45 Hold provided indicator (national use)		X		Note 13 Page 61
4.46 In-band information indicator	X			

Table 2

Reference	C	N	P	Comments
4.47 Incoming echo control device request indicator	X			
4.48 Incoming echo control device response indicator	X			
4.49 Instruction indicator	X			
4.50 Internal network number	X			
4.51 Interworking indicator	X			
4.52 Invoke ID (national use)		X		
4.53 ISDN access indicator	X			
4.54 ISDN user part indicator	X			
4.55 ISDN user part preference indicator	X			
4.56 Length (of each component or of an information element)	X			
4.57 Linked ID (national use)		X		
4.58 Local reference		X		
4.59 Location	X			
4.60 Look for busy (LFB)		X		
4.61 MLPP service domain		X		
4.62 MLPP user indicator	X			



Table 2

Reference	C	N	P	Comments
4.63 More instructions indicator	X			
4.64 National/international call indicator	X			
4.65 Nature of address indicator	X			
4.66 Network discard indicator		X		
4.67 Network identification plan (national use)		X		
4.68 Network identification (national use)		X		
4.69 Network identity (national use)		X		
4.70 Network specific facilities indicator (national use)		X		
4.71 Notification indicator	X			
4.72 Notification subscription option		X		
4.73 Nth upgraded parameter name	X			
4.74 Number incomplete indicator	X			
4.75 Numbering plan indicator	X			
4.76 Number qualifier indicator	X			

Table 2

Reference	C	N	P	Comments
4.77 Odd/even indicator	X			
4.78 Operation code		X		
4.79 Original redirection reason		X		
4.80 Originating participating service provider indicator		X		
4.81 Outgoing echo control device request indicator		X		
4.82 Outgoing echo control device information indicator		X		
4.83 Parameter tag		X		
4.84 Pass on not possible indicator	X			
4.85 Precedence level		X		
4.86 Problem code		X		
4.87 Protocol class	X			
4.88 Protocol profile	X			
4.89 Protocol control indicator	X			
4.90 Range	X			
4.91 Redirecting indicator		X		
4.92 Redirecting reason		X		



Table 2

Reference	C	N	P	Comments
4.93 Redirection counter		X		
4.94 Redirection possible indicator		X		
4.95 Release call indicator	X			
4.96 Routing label	X			
4.97 Satellite indicator	X			
4.98 SCCP method indicator	X			
4.99 Screening indicator	X			
4.100 Send notification indicator	X			
4.101 Sequence (national use)	X			
4.102 Set (national use)	X			
4.103 Signalling point code (national use)	X			
4.104 Simple segmentation indicator	X			
4.105 Solicited information indicator		X		
4.106 Status	X			
4.107 T9 timer indicator	X			
4.108 T9 timer instruction indicator		X		

Table 2

Reference	C	N	P	Comments
4.109 Temporary alternative routing indicator		X		
4.110 Terminating access indicator		X		
4.111 Terminating network routing number		X		
4.112 Through connection indicator		X		
4.113 Through connection instruction indicator		X		
4.114 Transit at intermediate exchange indicator	X			
4.115 Type	X			
4.116 Type of digits (national use)	X			
4.117 Type of network identification (national use)	X			

2.1.3 JT-Q.763, Formats and Codes

Table 3

References	C	N	P	Comments
1 General	X			
1.1 Routing label	X			
1.2 Circuit identification code	X			



Table 3

References	C	N	P	Comments
1.3 Message type code	X			
1.4 Formatting principles	X			
1.5 Mandatory fixed part	X			
1.6 Mandatory variable part	X			
1.7 Optional part	X			
1.8 End of optional parameters octet	X			
1.9 Order of transmission	X			
1.10 Coding of spare bits	X			
1.11 National message types and parameters			X	Note 16 Page 62
1.12 Rules for the allocation of message types codes and parameter name codes	X			
1.13 Meaning of “spare” codes and “reserved” codes	X			
2 Parameter formats and codes				Title
2.1 Message type codes			X	Note 7 Page 611 Note8 Page 61 Note11 Page 61
2.2 Coding of the length indicator	X			
2.3 Coding of the pointers	X			

Table 3

References	C	N	P	Comments
3 ISDN User Part parameters				Title
3.1 Parameter names			X	Note 15 Page 62
3.2 Access delivery information (open)	X			
3.3 Access transport	X			
3.4 Automatic congestion level	X			
3.5 Backward call indicators	X			
3.6 Call diversion information	-			
3.7 Call history information	X			
3.8 Call reference	-			
3.9 Called party number	X			
3.10 Calling party number	X			
3.11 Calling party's category	X			
3.12 Cause indicators	X			
3.13 Circuit group supervision message type indicator	X			
3.14 Circuit state indicator	X			
3.15 Closed user group interlock code	X			
3.16 Connected number	X			



Table 3

References	C	N	P	Comments
3.17 Connection request (open)	-			
3.18 Continuity indicators	X			
3.19 Echo control information		X		
3.20 End of optional parameters indicator	X			
3.21 Event information	X			
3.22 Facility indicator	-			
3.23 Forward call indicator	X			
3.24 Generic digits	X			
3.25 Generic notification indicator	X			
3.26 Generic number	X			
3.27 Generic reference (reserved)				
3.28 Information indicators	-			
3.29 Information request indicators	-			
3.30 Location number		X		
3.31 MCID request indicators	-			
3.32 MCID response indicators	-			

Table 3

References	C	N	P	Comments
3.33 Message compatibility information	X			
3.34 MLPP precedence	-			
3.35 Nature of connection indicators	X			
3.36 Network specific facility		X		
3.37 Optional backward call indicators	X			
3.38 Optional forward call indicators	X			
3.39 Original called number	X			
3.40 Origination ISC point code				
3.41 Parameter compatibility information	X			
3.42 Propagation delay counter		X		
3.43 Range and status	X			
3.44 Redirecting number		X		
3.45 Redirection information		X		
3.46 Redirection number	X			
3.47 Redirection number restriction parameter	-			
3.48 Remote operations	-			



Table 3

References	C	N	P	Comments
3.49 Service activation	-			
3.50 Signalling point code	X			
3.51 Subsequent number	-			
3.52 Suspend/resume indicators	X			
3.53 Transit network selection	X			
3.54 Transmission medium requirement	X			
3.55 Transmission medium requirement prime		X		
3.56 Transmission medium used		X		
3.57 User service information	X			
3.58 User service information prime	X			
3.59 User teleservice information	X			
3.60 User-to-user indicators	X			
3.61 User-to-user information	X			
3.62 Backward GVNS		X		
3.63 CCSS	X			
3.64 Call transfer number	-			
3.65 Call transfer reference				

Table 3

References	C	N	P	Comments
3.66 Forward GVNS	-			
3.67 Loop prevention indicators				
3.68 Network management controls	-			
3.69 Circuit assignment map	-			
3.70 Correlation id			X	
3.71 SCF id	X			
3.72 Call diversion treatment indicators	-			
3.73 Called IN number				
3.74 Call offering treatment indicators	-			
3.75 Charged party identification (national use)	-			
3.76 Conference treatment indicators	-			
3.77 Display information	-			
3.78 UID action indicators		X		
3.79 UID capability indicators			X	
3.80 Hop counter	-			
3.81 Collect call request	-			
3.82 Network function type	X			



Table 3

References	C	N	P	Comments
3.83 Charge area information	X			
3.85 Charge information	X			
3.86 Charge information type	X			
3.87 Contractor number		X		
3.88 Mobile communication's end information transfer		X		
3.89 Mobile communication's call reference		X		
3.90 Personal station number		X		
3.91 Cause of no ID		X		
3.92 National redirection reason		X		
3.93 Additional party's category	-			
3.94 Charge information delay		X		
3.95 Carrier information transfer		X		
3.96 Applied congestion control criteria information	-			
4 ISDN user part messages and codes			X	Note 7 Page 611 Note8 Page 61 Note11 Page 61
Annex A				Title

Table 3

References	C	N	P	Comments
Interpretation of spare codes	X			Note 15 Page 62
Tables for handling of unrecognized parameter values			X	Note 15 Page 62
Type A exchanges	X			
Type B exchanges		X		
Annex B				Title
General description of component encoding rules	X			Note 4 Page 61

2.1.4 JT-Q.764, Signalling Procedures

Table 4

References	C	N	P	N relev	Comments
1 General	X				
2 Basic call control and signalling procedures			X		Note 2 Page 61 Note 17 Page 62 Note 18 Page 62
2.1 Successful call set-up	X				
2.1.1 Forward address signalling - En bloc operation	X				
2.1.1.1 Actions required at the originating exchange	X				



Table 4

References	C	N	P	N relev	Comments
2.1.1.2 Actions required at an intermediate national exchange		X			
2.1.1.3 Action s required at an outgoing international exchange		X			
2.1.1.4 Actions required at an intermediate international exchange		X			
2.1.1.5 Action s required at an incoming international exchange		X			
2.1.1.6 Actions requ ired at the destination exchange	X				
2.1.1.7 Called party number for operator calls		X			
2.1.1.7.1 International transit operat or call		X			
2.1.1.7.2 International terminal operator call		X			

Table 4

References	C	N	P	N relev	Comments
2.1.1.8 Called party number for calls to testing and measuring devices	X				
2.1.2 Forward address signalling - Overlap operation	-				Note 2 Page 61 Note18 Page 62
2.1.2.1 Actions required at the originating exchange		X			
2.1.2.2 Actions required at an intermediate national exchange		X			
2.1.2.3 Actions required at an outgoing international exchange		X			
2.1.2.4 Actions required at an intermediate international exchange		X			
2.1.2.5 Actions required at an incoming international exchange		X			
2.1.2.6 Actions required at the destination exchange	X				



Table 4

References	C	N	P	N relev	Comments
2.1.2.7 Called party number for operator calls		X			
2.1.2.8 Called party number for calls to testing and measuring devices	X				
2.1.3 Calling party number	X				
2.1.4 Address complete message or connect message			X		Note18 Page 62
2.1.4.1 Actions required at the destination exchange	X				
2.1.4.2 Actions required at an intermediate national exchange		X			
2.1.4.3 Actions required at an outgoing international exchange		X			
2.1.4.4 Actions required at an intermediate international exchange		X			

Table 4

References	C	N	P	N relev	Comments
2.1.4.5 Actions required at an incoming international exchange		X			
2.1.4.6 Actions required at the originating exchange	X				
2.1.4.7 Through-connection and awaiting answer indication at the destination exchange	X				Note 19 Page 62
2.1.4.8 Return of address complete message in interworking situations		X			
2.1.4.9 Access delivery indication	X				Note 19 Page 62
2.1.5 Call progress message before address complete message (basic call)			X		Note 18 Page 62
2.1.5.1 Actions required at the destination exchange	X				



Table 4

References	C	N	P	N relev	Comments
2.1.5.2 Actions required at an intermediate national, outgoing international, intermediate international and incoming international exchange		X			
2.1.5.3 Actions required at the originating exchange	X				
2.1.6 Information messages	-				Note 13 Page 61 Note20 Page 62
2.1.6.1 Requesting information	-				
2.1.6.2 Sending solicited information	-				
2.1.6.3 Receiving solicited information message	-				
2.1.7 Answer message			X		Note18 Page 62
2.1.7.1 Actions required at the destination exchange	X				

Table 4

References	C	N	P	N relev	Comments
2.1.7.2 Actions required at an intermediate national exchange		X			
2.1.7.3 Actions required at an outgoing international exchange		X			
2.1.7.4 Actions required at an intermediate international exchange		X			
2.1.7.5 Actions required at an incoming international exchange		X			
2.1.7.6 Actions required at the originating exchange	X				
2.1.7.7 Return of answer from automatic terminals	X				
2.1.8 Transfer function of continuity check request message	-				
2.1.9 Charging			X		Note 4 Page 61
2.1.10 Forward transfer message	-				



Table 4

References	C	N	P	N relev	Comments
2.1.11 Transit network selection (national use)			X		Note 4 Page 61
2.1.12 Simple segmentation	X				
2.1.12.1 Interworking with Q.767 and Blue Book (1988 version) ISDN-User Parts	X				
2.1.13 Procedure for Nx64 kbit/s Connection type.					
2.2 Unsuccessful call set-up			X		Note18 Page 62
2.2.1 Actions at exchange initiating a release message	X				
2.2.2 Actions at intermediate exchange		X			
2.2.3 Actions at the controlling exchange (i.e. the exchange controlling the call)	X				
2.2.4 Tones and announcements	X				Note 4 Page 61
2.2.5 Address incomplete	X				

Table 4

References	C	N	P	N relev	Comments
2.3 Normal call release			X		Note18 Page 62
2.3.1 Release initiated by a calling party	X				
2.3.2 Release initiated by a called party	X				
2.3.3 Release initiated by the network	X				
2.3.4 Storage and release of IAM information	X				
2.4 Suspend, resume			X		Note18 Page 62
2.4.1 Suspend	X				
2.4.2 Resume	X				
2.4.3 Expiration of timer (T6) or timer (T38)	X				
2.5 Signalling procedures for connection type allowing fallback	-				Note 4 Page 61
2.5.1 - 2.5.4 (omitted)	-				
2.6 Propagation delay determination procedure	-				Note 4 Page 61
2.6.1 (omitted)	-				
2.7 Echo control procedure	-				Note 4 Page 61



Table 4

References	C	N	P	N relev	Comments
2.7.1 - 2.7.3 (omitted)	-				
2.8 Network features	X				
2.8.1 Autom atic repeat attempt	X				
2.8.2 Bloc king and unblocking of circuits and circuit groups	X				
2.8.2.1 Other actions on receipt of a blocking message	X				
2.8.2.2 Circuit group blocking and unblocking messages	X				
2.8.2.3 Abnormal blocking and circuit group blocking procedures	X				
2.8.3 Circuit group query (national use)					Title
2.8.3.1 General			X		Note 8 Page 61
2.8.3.2 Interpretation of circuit states			X		Note 8 Page 61

Table 4

References	C	N	P	N relev	Comments
2.8.3.3 Test procedure of the circuit state suing the circuit query test	X				
2.9 Abnormal conditions			X		
2.9.1 Dual seizure	X				
2.9.1.1 Unguarded interval	X				
2.9.1.2 Detection of dual seizure	X				
2.9.1.3 Preventive action			X		Note 21 Page 62
3.9.1.4 Prevention of dual seizure	X				
2.9.1.4 Action to be taken on detection of dual seizures	X				
2.9.2 Transm ission alarm handling for digital inter-exchange circuits		X			
2.9.3 Reset of circuits and circuit groups	X				
2.9.3.1 Reset circuit message	X				
2.9.3.2 Circuit group reset message	X				



Table 4

References	C	N	P	N relev	Comments
2.9.3.3 Abnormal circuit group reset message procedures	X				
2.9.4 Failure in the blocking/unblocking sequence	X				
2.9.5 Receipt of unreasonable signalling information messages	X				
2.9.5.1 Handling of unexpected messages	X				
2.9.5.2 General requirements on receipt of unrecognized signalling information messages and parameters	X				Note 22 Page 62
2.9.5.3 Procedures for the handling of the unrecognized messages or parameters	X				Note 22 Page 62
2.9.5.3.1 Unrecognized messages	X				
2.9.5.3.2 Unrecognized parameters	X				Note 5 Page 61 Note 15 Page 62

Table 4

References	C	N	P	N relev	Comments
2.9.5.3.3 Unrecogniz ed parameter values	X				Note 5 Page 61 Note15 Page 62
2.9.5.4 Proce dures for the handling of responses indicating unrecognized information has been sent					Title
2.9.5.4.1 Type A exchanges	X				Note 4 Page 61
2.9.5.4.2 Type B exchanges		X			
2.9.5.5 Procedures for handling unreasonable information	X				Note 4 Page 61
2.9.6 Failure to receive a "release complete" message - Timer T1 and T5	X				
2.9.7 Failure to receive a response to an informat ion request message	-				
2.9.8 Other failure conditi ons					Title



Table 4

References	C	N	P	N relev	Comments
2.9.8.1 Inability to release in response to a release message	X				
2.9.8.2 Call-failure	X				
2.9.8.3 Abno rmal release conditions	X				
2.9.9 Tempor ary trunk bloc king (TTB) (national use)	-				Note 14 Page 61
2.9.9.1 Procedures	X				
2.10 ISDN User Part signalling congestion control	-				
2.10.1 Gener al	X				
2.10.2 Proce dures	X				
2.11 Automat ic congestion control	X				Note 23 Page 62
2.11.1 Receip t of a release message containing an automatic congestion level paramet er	X				
2.11.2 Action s taken during overload	X				

Table 4

References	C	N	P	N relev	Comments
2.12 Unequipped circuit identification code message (national use)	-				
2.13 ISDN User Part availability control	-				
2.13.1 General	-				
2.13.2 Procedures	-				
2.14 MTP Pause/Resume	-				
2.15 Overlength messages	X				
2.16 Support for Temporary Alternative Routing (TAR)		X			
2.17 Hop counter procedure	X				
2.17.1 Actions at the initiating exchange		X			
2.17.2 Actions at an intermediate exchange		X			
2.17.3 Actions at the destination local exchange		X			
2.18 Call collect request procedure		X			



Table 4

References	C	N	P	N relev	Comments
Annex A	X				Note 24 Page 62
Annex B	X				
Annex C	X				Note 4 Page 61
Annex D			X		Note 4 Page 61
Annex E			X		Note 4 Page 61
Annex F	X				
Annex G	X				

2.1.5 Q.730 ISDN Supplementary Services

Table 5

References	C	N	P	Comments
1 General	-			
1.1 Exceeding the maximum message length	X			
1.2 Network specific facilities (national option)	X			Note 4 Page 61
1.2.1 Sending unsolicited information (national use)	X			Note 25
1.3 Generic procedures				Title
1.3.1 Service activation (national use)				Title
1.3.1.1 General description	X			Note 4 Page 61
1.3.1.2 Service activation procedure			X	Note 4 Page 61 Note11 Page 61

Table 5

References	C	N	P	Comments
1.3.1.3 Error procedures	X			
1.3.2 General digit transfer (national use)	X			
1.3.3 Remote operations service (ROSE) (national use)				Title
1.3.3.1 General description	X			Note 4 Page 61 Note11 Page 61
1.3.3.2 Remote operations procedure in ISDN user part	X			Note 4 Page 61 Note11 Page 61
1.3.3.3 Error performance	X			Note 4 Page 61 Note11 Page 61
1.3.4 Generic notification procedure	X			Note 4 Page 61
1.3.5 Generic number transfer	X			Note 4 Page 61
1.4 End-to-end signalling			X	Title
1.4.1 Introduction			X	Note 3 Page 61
1.4.2 Pass-along method (national use)	X			
1.4.3 SCCP method		X		
1.4.4 Chaining of ISDN user part end-to-end signalling connections		X		
1.4.5 Use of the protocol control indicator (PCI)	X			Note 4 Page 61



Table 5

References	C	N	P	Comments
1.4.6 Operation of the pass-along method (national use)	X			
1.4.7 Operation of the SCCP method - Connectionless services (national use)		X		
1.4.8 Operation of the SCCP method - Connection-oriented service		X		
1.4.9 Interface elements between ISDN user part and SCCP (embedded transfer)		X		
1.5 Layout of service Recommendations	-			Note 4 Page 61 Note26 Page 62
1.6 List of supplementary services	-			Note 4 Page 61 Note26 Page 62
1.7 Association of supplementary services to bearer services and teleservices	-			Note 4 Page 61 Note26 Page 62
1.8 Definition of supplementary services	-			Note 4 Page 61 Note26 Page 62
Appendix I	-			Note 4 Page 61 Note26 Page 62

2.2 Monitoring and Measurements for SS7 Networks, ITU Q.752 - 1997

Table 6

References	C	N	P	Comments
1 Introduction	-			
1.1 General	-			
1.1.1 <no heading\>	X			
1.1.2 <no heading\>		X		
1.2 Network view	-			
1.2.1 <no heading\>	-			
1.3 Guidelines for uses of measurements	-			
1.3.1 <no heading\>	-			
1.4 Grouping of measurements	-			
1.4.1 <no heading\>			X	Note 27 Page 62
1.4.2 <no heading\>			X	Note 27 Page 62
1.5 Collection of measurements	-			
1.6 Definition of terms	-			
1.6.1 fault (F)			X	Note28 Page 62
1.6.2 configuration (C)	X			
1.6.3 performance (P)	X			
1.6.4 accounting (A)	-			
1.6.5 network planning and administration (N)	X			



Table 6

References	C	N	P	Comments
1.6.6 near real time measurements (R)	X			
1.7 Listing of measurements	-			
1.7.1 General	-			
1.7.1.1 <no heading>	-			
1.7.1.2 <no heading>	X			
1.7.1.3 <no heading>			X	Note29 Page 62
1.7.1.4 <no heading>	X			
1.7.1.5 <no heading>	X			
1.7.1.6 <no heading>		X		Note29 Page 62
1.7.1.7 <no heading>		X		Note29 Page 62
1.7.2 Intervals for measurements		X		Note29 Page 62
2 MTP monitoring and measurements	-			
3 SCCP monitoring and measurements	-			
4 ISDN-UP monitoring and measurements	-			
4.1 General	X			
4.2 Table 10				
4.2.1 <no heading>	-			
4.2.2 <no heading>	-			

Table 6

References	C	N	P	Comments
4.2.3 <no heading\>	-			
4.2.4 <no heading\>	-			
4.2.5 <no heading\>	-			
4.3 Table 11	-			
4.3.1 <no heading\>	-			
4.4 Table 12				
4.4.1 <no heading\>	-			
4.4.2 <no heading\>	-			
4.4.3 <no heading\>	-			
4.4.4 <no heading\>	-			
4.4.5 <no heading\>	-			
4.4.6 <no heading\>	-			
5 TC monitoring and measurements	-			
6 Uses of measurements	-			
6.1 Introduction	-			
6.2 Message transfer part (MTP)	-			
6.3 Signalling connection control part (SCCP)	-			
6.3.1 SCCP fault management	-			
6.3.1.1 Routing failures	X			



Table 6

References	C	N	P	Comments
6.3.1.2 SCCP unavailability		X		
6.3.2 SCCP configuration management		X		Note7 Page 61
6.3.3 SCCP performance	-			
6.3.3.1 Utilization			X	Note1 Page 61
6.3.3.2 SCCP Quality of Service			X	Note1 Page 61
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	-			
Table 1 MTP Signalling Link Faults and Performance	-			
Table 2 MTP Signalling Link Availability	-			
Table 3 MTP Signalling Link Utilization	-			
Table 4 MTP Signalling Link Set and Route Set Availability	-			

Table 6

References	C	N	P	Comments
Table 5 MTP Signalling Point Status	-			
Table 6 MTP Signalling Traffic Distribution (Signalling Route Utilization)	-			
Table 7 SCCP Error Performance	-			
Table 8 SCCP Subsystem Availability	-			
Table 9 SCCP Utilization	-			
Table 10 ISDN User Part Availability	-			
Table 10.1 Start of local ISDN UP unavailable - failure			X	Note30 Page 63
Table 10.2 Start of local ISDN User Part unavailable - busy			X	Note30 Page 63
Table 10.3 ISDN User Part available			X	Note30 Page 63
Table 10.4 Total duration of ISDN UP unavailable			X	Note30 Page 63
Table 10.5 Start of local ISDN User Part congestion			X	Note30 Page 63



Table 6

References	C	N	P	Comments
Table 10.6 Stop of local ISDN User Part congestion		X		
Table 10.7 Duration of local ISDN User Part congestion		X		
Table 10.8 Start of remote ISDN User Part unavailable		X		Note31 Page 63
Table 10.9 Stop of remote ISDN User Part unavailable		X		Note31 Page 63
Table 10.10 Duration remote of ISDN UP unavailable		X		Note31 Page 63
Table 10.11 Start of remote ISDN User Part congestion		X		Note31 Page 63
Table 10.12 Stop of remote ISDN User Part congestion		X		Note31 Page 63
Table 10.13 Duration of remote ISDN User Part congestion		X		Note31 Page 63
Table 11 ISDN User Part Utilization	-			
Table 11.1 Total ISDN UP messages sent			X	Note 32 Page 63

Table 6

References	C	N	P	Comments
Table 11.2 Total ISDN UP messages received			X	Note 32 Page 63
Table 12 ISDN User Part errors	-			
Table 12.1 No ack for cct reset within T17			X	Note33 Page 63
Table 12.2 No GRA received for GRS within T23			X	Note33 Page 63
Table 12.3 -	-			
Table 12.4 -	-			
Table 12.5 RLC not received within T5	X			
Table 12.6 Release initiated due to abnormal conditions		X		
Table 12.7 Circuit BLO (excessive errors detected by CRC)		X		
Table 12.8 Missing blocking ack in CGBA for previous CGB	X			
Table 12.9 Miss ing unblocking ack in CGUA for previous CGU	X			
Table 12.10 Abnormal blocking ack in CGBA for previous CGB	X			



Table 6

References	C	N	P	Comments
Table 12.11 Abnormal unblocking ack in CGUA for previous CGU	X			
Table 12.12 Unexpected CGBA with abnormal blocking ack	X			
Table 12.13 Unexpected CGUA with abnormal unblocking ack	X			
Table 12.14 Unexpected BLA with abnormal blocking ack	X			
Table 12.15 Unexpected UBA with abnormal unblocking ack	X			
Table 12.16 No BLA received for BLO within T13			X	Note34 Page 63
Table 12.17 No UBA received for UBL within T15			X	Note34 Page 63
Table 12.18 No CGBA received for CGB within T19			X	Note34 Page 63
Table 12.19 No CGUA received for CGU within T21			X	Note34 Page 63
Table 12.20 Message format error			X	Note35 Page 63



Table 6

References	C	N	P	Comments
Table 12.21 Unexpected message rxcvd.			X	Note35 Page 63
Table 12.22 Release due to unrecognised info.		X		
Table 12.23 Inability to release a circuit		X		
Table 13 Local TC Utilization	-			
Table 14 TC Fault Measurements	-			



3 Notes and Comments

- Note 1:** Using Signalling Connection Control Part (SCCP) as a service provider is not supported.
- Note 2:** Overlap signalling is not supported for originating call setup.
- Note 3:** The Pass-along end-to-end signalling method is supported, but not the SCCP method.
- Note 4:** Procedures necessary to fully support this function/service is the responsibility of the Call Control application.
- Messages and parameters involved are transparently handled by this ISUP.
- Note 5:** Compatibility information regarding parameters is handled by Call Control.
- Note 6:** The USR message is allowed during all states of a call, even though the Facility request message will always be answered with Facility reject.
- Note 7:** CMC, CMRJ and CMR are not supported, and will cause a Confusion message(CFN) to be sent.
- Note 8:** A received CQR is correctly answered with a CQM. This ISUP never sends CQR.
- Note 9:** A received DRS will be either be treated like a normal REL, or answered with a CFN message. This ISUP never sends DRS.
- Note 10:** Never sent by this ISUP, discarded if received.
- Note 11:** FAC, IDR, IRS and NRM are either passed transparently to Call Control, or handled according to supplied compatibility information.
- Note 12:** Never sent by this ISUP, answered with FRJ if received.
- Note 13:** INR can be used only to request the Calling party number. Other indicators are always ignored. The Call control application is not engaged.
- Note 14:** Never sent by this ISUP.

- Note 15:** All parameters and indicators are handled by this ISUP module or passed transparently to/from the Call Control application, except those contained in unsupported messages.
- Note 16:** National messages are, if defined in the ISUP module configuration file, passed transparently to/from the Call control application. National parameters are always passed transparently.
- Note 17:** Multirate connection types are not supported.
- Note 18:** Only action at the national originating and destination exchange is supported.
- Note 19:** Depends on the functionality of the Call control application above ISUP.
- Note 20:** This ISUP can be configured to send an INR when 'Calling party number' is missing in the received IAM. The call will be held until an INF is received or timer T33 expires.
- Note 21:** Additional methods are available.
- Note 22:** Type B exchange is not supported.
- Note 23:** Load control may be applied by the Call control application and/or the Management function, in which case the ACC parameter will be included in outgoing Release messages.
- An incoming ACC parameter is handled by this ISUP.
- Note 24:** The time-out values are defined in the configuration file
- Note 25:** An unsolicited INF will be passed transparently to the Call control application.
- Note 26:** Recommendations Q.731-Q.737 are not addressed in this document, since they describe functionality only applicable to a Call control application.
- Note 27:** ISUP support most of the definition rules of the groups, but has not grouped them together.
- Note 28:** Every fault or measurement is reported on occurrence instead of the first occurrence and then the number of occurrences in some interval.
- Note 29:** Timestamps on events reported on occurrence are not supported by the ISUP module.



- Note 30:** Unavailability measurements are architecturally dependent and are optional in the ITU standard. An indication of the module availability is reported.
- Note 31:** Remote measurements are only necessary at gateway signalling points.
- Note 32:** Measurements are not provided periodically but can be retrieved on-demand by an external management application.
- Note 33:** Timeout of individual and group circuit reset (T17 and T23) is a combined measurement - no individual measure is available.
- Note 34:** No distinction is made between individual and group circuit blocking therefore a combined measurement is used. i.e. T19 and T21 are used instead of T13 and T15.
- Note 35:** A number of individual alarms are raised on unexpected and incorrectly formatted errors. These can be combined by an external management agent to obtain a single alarm where required.
- Note 36:** This is different from the ITU-T CHG message because signal informing charge information is not adequately specified in ITU-T.





Reference List

ITU Standards:

- [1] *ITU Standard rec. Functional Description of the Integrated Services Digital Network (ISDN) User Part of Signalling System No. 7 (SS7), Q.761.*
- [2] *Integrated Services Digital Network (ISDN) User Part of Signalling System No. 7 (SS7). General Function of Messages and Signals, Q.762.*
- [3] *Integrated Services Digital Network (ISDN) User Part of Signalling System No. 7 (SS7). Formats and Codes, Q.763.*
- [4] *Integrated Services Digital Network (ISDN) User Part of Signalling System No. 7 (SS7). Signalling Procedures, Q.764.*
- [5] *ISDN Supplementary Services, Q.730.*
- [6] *Monitoring and Measurements for Signalling System No 7 Networks, ITU Q.752 - 1993.*

TTC Standard rec.

- [7] *Functional Description of the Integrated Services Digital Network (ISDN) User Part of Signalling System No. 7 (SS7), JT-Q.761.*
- [8] *Integrated Services Digital Network (ISDN) User Part of Signalling System No. 7 (SS7). General Function of Messages and Signals, JT-Q.762.*
- [9] *Integrated Services Digital Network (ISDN) User Part of Signalling System No. 7 (SS7). Formats and Codes, JT-Q.763.*
- [10] *Integrated Services Digital Network (ISDN) User Part of Signalling System No. 7 (SS7). Signalling Procedures, JT-Q.764.*