
Switching System Operations Generic Requirements for ISDN

Contents

1.	Introduction	1-1
1.1	Purpose of Document	1-1
1.2	Reasons for Issue 2, Revision 1	1-1
1.3	Reasons for Issue 2	1-1
1.4	Document Organization	1-3
1.5	Requirements Terminology	1-3
1.6	Requirement Labeling Conventions	1-4
1.6.1	Numbering of Requirement and Related Objects	1-4
1.6.2	Requirement, Conditional Requirement, and Objective Object Identification	1-5
2.	Switch Maintenance	2-1
2.1	Overview	2-1
2.2	States for ISDN Access Lines and Associated Entities	2-1
2.2.1	State Model Overview	2-1
2.2.1.1	State Model Applied to ISDN	2-3
2.2.2	General Requirements	2-5
2.2.3	Applicable States	2-7
2.2.3.1	State Model Applications	2-7
2.2.3.2	States for ISDN Resources	2-8
2.2.3.3	States for ISDN Subscriber Service	2-22
2.2.4	Triggers for State Changes	2-26
2.2.4.1	Autonomous State Changes	2-26
2.2.4.2	Management (External Request) State Changes	2-29
2.2.5	Logging and Reporting	2-31
2.3	PRI B-Channel Availability Signaling Procedures ⁷	2-32
2.3.1	B-Channel Status Categories	2-33
2.3.1.1	In Service (IS)	2-34
2.3.1.2	Out Of Service	2-34
2.3.2	Relationship With ISDN Switch Internal States	2-36
2.3.3	Relationship with Restart Procedures	2-37
2.3.4	Sending a SERVICE Message	2-41
2.3.5	Receiving a SERVICE Message	2-42
2.3.6	Collisions	2-42
2.3.6.1	SERVICE Message Collision	2-42
2.3.6.2	SETUP Message Collision	2-44
2.3.7	Status Audits	2-45

2.3.8	Status on Provisioning	2-45
2.3.9	Error Conditions.....	2-46
2.3.9.1	Receipt of a SERV Message When Not Subscribed	2-46
2.3.9.2	Receipt of a Solicited Message With Invalid Contents ...	2-46
2.3.9.3	Unsolicited SERVICE ACKNOWLEDGE Message	2-47
2.3.10	Relationship of B-Channel Availability Control With D-Channel Switchover	2-47
2.4	Access Line Data Link and Network Layer Maintenance	2-48
2.4.1	Protocol Abnormality Log Enhancements	2-48
2.4.2	Protocol Capture	2-48
2.4.3	Data Link Connection Identifier (DLCI) Table Management	2-49
2.5	Call Trace	2-49
2.6	Call Control Replay.....	2-49
2.7	Maintenance Requirements for Phase 1.2 Services	2-49
2.8	Use of the 108 Test Line	2-49
2.9	Service Maintenance	2-49
3.	Memory Administration.....	3-1
3.1	Relationship to Previous Issues and Other Documentation	3-1
4.	Network Traffic Management.....	4-1
5.	Network Data Generation	5-1
6.	Automatic Internal Administration	6-1
7.	Generic OS/NE Interfaces.....	7-1
7.1	Messages at the ISDN Switch/Surveillance and Switch/Testing OS Interface.....	7-1
7.2	Messages at the Switch/Memory Administration OS Interface	7-1
7.2.1	Transaction Language One (TL1).....	7-1
7.2.2	Open Systems Interconnection (OSI)	7-2
7.3	Messages at the Switch/Network Traffic Management OS Interface.....	7-2
7.4	Messages at the Switch/Data Collection OS Interface.....	7-2
	Appendix A: Data Dictionary - per ISDN Switch Parameters	A-1
	Appendix B: Reference Table - per ISDN Switch Parameters.....	B-1
	Appendix C: Messages to Support ISDN Maintenance	C-1
	Appendix D: Secondary States Used for ISDN Access	D-1
	Appendix E: State Values for ISDN Resource and Service Entities Using Hierarchy Trees.....	E-1
	Appendix F: B-Channel Availability Message Definitions and Message Structure	F-1
F.1	B-Channel Availability Message Definitions	F-1
F.1.1	Overview	F-1
F.1.2	B-Channel Availability Messages.....	F-1

F.1.2.1	SERVICE.....	F-1
F.1.2.2	SERVICE ACKNOWLEDGE Message Content.....	F-2
F.2	Message Structure	F-3
F.2.1	Overview	F-3
F.2.2	Protocol Discriminator	F-4
F.2.3	Call Reference.....	F-4
F.2.4	B-Channel Availability Message Types	F-4
F.2.5	Information Elements.....	F-4
F.2.5.1	Coding of the Channel Identification	F-4
F.2.5.2	Change Status	F-5
References	References-1
Glossary	Glossary-1

List of Figures

Figure 2-1.	Supporting/Supported Relationship and Composite Relationship Between Five Entities (D-Channel, B-Channel, Access Line, DN/CT, and TSP for BRI).....	2-9
Figure 2-2.	Supporting/Supported Relationship and Composite Relationship Between Four Entities (D-Channel, B-Channel, Access Line, and DN/CT for PRI).....	2-10
Figure 2-3.	State Transition Examples for ISDN Access Lines.....	2-15
Figure 2-4.	State Transition Examples for ISDN D-Channel	2-18
Figure 2-5.	State Transition Examples for ISDN B-Channel.....	2-21
Figure 2-6.	State Transition Examples for ISDN DN/CT	2-23
Figure 2-7.	State Transition Examples for ISDN Terminal Service Profile	2-25
Figure E-1.	State Values for the ISDN Access Line.....	E-2
Figure E-2.	State Values for the ISDN D Channel	E-3
Figure E-3.	States Values for Individual ISDN D Channel (D1 and D2).....	E-4
Figure E-4.	State Values for the ISDN B Channel	E-5
Figure E-5.	State Values for the ISDN Directory Number/Call Type (DN/CT)	E-6
Figure E-6.	State Values for the ISDN Terminal Service Profile.....	E-7
Figure F-1.	Change Status Information Element.....	F-5

List of Tables

Table 2-1.	State Values for the ISDN BRI Access Line	2-13
Table 2-2.	State Values for the ISDN PRI Access Line	2-14
Table 2-3.	State Values for ISDN BRI D-Channel	2-16
Table 2-4.	State Values for Individual PRI ISDN D-Channel (D1 and D2).....	2-17
Table 2-5.	State Values for ISDN BRI B-Channel	2-19
Table 2-6.	State Values for ISDN PRI B-Channel.....	2-19
Table 2-7.	State Values for ISDN Permanent Packet B-Channel	2-20
Table 2-8.	State Values for ISDN BRI and PRI Directory Number/Call Type	2-22
Table 2-9.	State Values for ISDN BRI Terminal Service Profile (TSP)	2-24
Table 2-10.	Near-End States Resulting from SERVICE Message Collisions	2-43
Table D-1.	Secondary State Values	D-1
Table F-1.	SERVICE Message Content	F-2
Table F-2.	SERVICE ACKNOWLEDGE Message Content.....	F-3
Table F-3.	Protocol Discriminator	F-4
Table F-4.	Message Types	F-4
Table F-5.	Change Status	F-5