

Common User-Side Procedures for ISDN Primary Rate Interface Generic Requirements

Contents

Preface	Preface-1
1. Introduction	1-1
1.1 Purpose and Scope	1-1
1.2 Documentation Organization/Structure	1-1
1.3 Summary of Differences Between the User-Side and Network-Side Procedures.....	1-4
1.4 Relation to Other Bellcore Documents	1-7
1.5 Requirements Terminology.....	1-7
1.6 Requirement Labeling Conventions.....	1-8
1.6.1 Numbering of Requirement and Related Objects	1-8
1.6.2 Requirement, Conditional Requirement, and Objective Object Identification	1-9
2. High-Level Descriptions and Assumptions	2-1
2.1 Terminology	2-1
2.1.1 Call Origination and Call Termination	2-1
2.1.2 Switch Names/Acronyms.....	2-2
2.2 High-Level Description.....	2-2
2.3 Assumptions	2-3
2.3.1 Bearer Capabilities.....	2-3
2.3.1.1 Circuit-Mode, 64-kbps, 8-kHz Structured, Speech, Demand.....	2-4
2.3.1.2 Circuit-Mode, 64-kbps, 8-kHz Structured, 3.1-kHz Audio Information Transfer, Demand	2-4
2.3.1.3 Circuit-Mode, 64-kbps, 8-kHz Structured, Unrestricted Digital Transmission-Rate Adapted from 56-kbps, Demand.....	2-4
2.3.1.4 Circuit-Mode, 64-kbps, 8-kHz Structured, Unrestricted Digital Transmission (64-kbps), Demand.....	2-5
2.3.2 Interface Configurations	2-5
3. Physical Layer.....	3-1
3.1 Framing Requirements	3-1
3.2 Termination Impedance and Return Loss	3-1
3.3 Longitudinal Balance	3-1
3.4 Interference	3-2
3.5 Jitter.....	3-2

3.6	Wander	3-2
3.7	Transmitter/Receiver Pulse Shape	3-2
3.8	Synchronization.....	3-3
3.9	Line Code	3-3
3.10	Error Conditions	3-3
3.11	Performance Report Messaging	3-4
3.12	Maintenance	3-5
3.13	Channel Assignment	3-5
3.14	Idle Codes.....	3-5
3.15	Bit Transmission Order	3-5
3.16	Operations Systems/Network Element Interface	3-6
3.17	Physical, Environmental, Electrical, Quality & Reliability, Systems Administration.....	3-6
4.	Link Layer.....	4-1
4.1	Link Layer Requirements for D-Channel Call Control Signaling	4-1
4.2	Timers and Counters	4-3
5.	Call Control Procedures	5-1
5.1	Subscription Parameters.....	5-1
5.1.1	Parameters Per Office for User-Side ISDN PRI	5-1
5.1.2	Subscription Parameters Per User-Side Interface	5-3
5.2	Call Reference Selection	5-6
5.2.1	Allocation And Release Of Call References.....	5-6
5.2.2	Call References Used In Messages Sent By The SPCS-U.....	5-7
5.2.3	Call References In Messages Received By The SPCS-U	5-8
5.3	B-Channel Selection.....	5-9
5.3.1	Terminating B-Channel Selection.....	5-9
5.3.2	B-Channel Selection For Originating Calls	5-10
5.4	SPCS-U Determination of Interface Busy	5-11
5.4.1	Busy Limit for Terminating Circuit-Switched Calls.....	5-12
5.4.2	Busy Limit for Originating Circuit-Switched Calls.....	5-12
5.5	Timers	5-12
6.	Switching and Signaling	6-1
6.1	General Rules For Message Processing	6-1
6.2	Origination Treatment	6-2
6.2.1	Subscription Parameters.....	6-3
6.2.2	Interface Busy/Idle Status	6-3
6.2.3	Call Setup	6-5
6.2.4	Expiration of Timer T303	6-9
6.2.5	Call Rejected by Far-End SPCS-N	6-10
6.2.6	Channel Negotiation Procedures.....	6-14
6.2.7	Call Proceeding Indication.....	6-17
6.2.8	Called Party Alerting	6-18
6.2.9	Call Progress Indication	6-22

6.2.10	Called Party Answer	6-25
6.3	Termination Treatment.....	6-27
6.3.1	Called Address Interpretation	6-31
6.3.2	Call Proceeding Indication.....	6-33
6.3.3	Termination to ISDN Interfaces.....	6-33
6.3.4	Termination to Non-ISDN Lines	6-34
6.3.4.1	Ringing and Audible Ring Tone.....	6-34
6.3.4.2	Ringing Removal.....	6-35
6.3.5	Termination to Non-PRI Based Private Facilities.....	6-35
6.3.5.1	Non-ISDN Tie Trunks	6-35
6.3.5.2	Non-ISDN Foreign Exchange Facilities.....	6-36
6.3.5.3	OUTWATS Facilities	6-37
6.3.6	Termination of Calls That Cannot be Completed	6-37
6.3.6.1	Call Rejected by the Called ISDN User	6-37
6.3.6.2	Busy Line Treatment	6-38
6.3.6.3	Intercept Treatment.....	6-38
6.3.6.4	Unavailable Equipment/Facilities Internal or Other Failures	6-41
6.3.6.5	Abandoned Calls.....	6-42
6.4	Call Clearing	6-44
6.4.1	General Call Clearing Procedures.....	6-45
6.4.2	Call Clearing Request From the Far-End SPCS-N	6-45
6.4.2.1	Clearing to Remote User	6-48
6.4.3	SPCS-U Initiates Call Clearing to Far-End SPCS-U	6-50
6.4.3.1	Call Clearing Request by Remote User.....	6-52
6.4.4	Clear Collision	6-55
6.5	Error Treatment.....	6-55
6.5.1	Protocol Error Treatment	6-56
6.5.1.1	Error Treatments Associated With an Established Call Reference	6-57
6.5.1.2	Errors During Call Establishment.....	6-58
6.5.1.3	Errors During An Active Call.....	6-63
6.5.1.4	Errors During Call Clearing.....	6-64
6.5.1.5	Errors Not Associated With A Call	6-67
6.5.1.6	System Status Failures	6-69
6.5.1.7	Nonlocking Shift Procedures	6-73
6.5.1.8	Error Treatments Independent of Call State	6-73
6.5.2	Layer 3 Actions Resulting From A Malfunctioning Data Link	6-74
6.5.2.1	Layer 3 Procedures	6-75
6.5.2.2	Call Clearing By Remote User During Recovery Timing	6-80
7.	Layer 3 Messages and Information Elements.....	7-1
7.1	Message Functional Definitions.....	7-1
7.1.1	Overview	7-1

7.1.2	Messages	7-2
7.1.2.1	ALERTing	7-3
7.1.2.2	CALL PROCeeding.....	7-4
7.1.2.3	CONNect	7-5
7.1.2.4	CONNect ACKnowledge	7-6
7.1.2.5	DISConnect.....	7-7
7.1.2.6	PROGress	7-8
7.1.2.7	RELease.....	7-10
7.1.2.8	RELease COMplete	7-11
7.1.2.9	REStart	7-12
7.1.2.10	REStart ACKnowledge	7-13
7.1.2.11	SERVice	7-14
7.1.2.12	SERVice ACKnowledge	7-15
7.1.2.13	SETUP	7-16
7.1.2.14	STATus.....	7-19
7.1.2.15	STATus ENQuiry	7-20
7.1.2.16	FACILITY	7-21
7.2	Message Structure	7-23
7.2.1	Overview	7-23
7.2.2	Protocol Discriminator	7-24
7.2.3	Call Reference.....	7-25
7.2.4	Message Type	7-27
7.2.5	Other Information Elements.....	7-28
7.2.5.1	Locking Shift Information Elements	7-31
7.2.5.2	Bearer Capability	7-31
7.2.5.3	Call State.....	7-35
7.2.5.4	Called Party Number	7-38
7.2.5.5	Called Party Subaddress	7-40
7.2.5.6	Calling Party Number	7-42
7.2.5.7	Calling Party Subaddress.....	7-44
7.2.5.8	Cause.....	7-46
7.2.5.9	Channel Identification	7-60
7.2.5.10	High-Layer Compatibility	7-64
7.2.5.11	Low-Layer Compatibility	7-65
7.2.5.12	Network-Specific Facilities	7-67
7.2.5.13	Progress Indicator	7-70
7.2.5.14	Redirecting Number.....	7-74
7.2.5.15	Redirecting Subaddress	7-77
7.2.5.16	Restart Indicator.....	7-80
7.2.5.17	Transit Network Selection	7-81
7.2.5.18	Facility	7-82
7.2.6	National-Specific Information Elements	7-84
7.2.6.1	Change Status	7-84
7.2.6.2	Operator System Access	7-85

7.2.7	Network-Specific Information Elements	7-85
7.2.7.1	Originating Line Information	7-86
7.2.7.2	User Entered Code	7-86
7.3	Components.....	7-87
7.3.1	Invoke Component	7-88
7.3.2	Return Result Component	7-88
7.3.3	Return Error Component.....	7-89
7.3.4	Reject Component.....	7-89
7.3.5	Interpretation Component	7-90
7.3.6	Network Protocol Profile Component.....	7-90
7.4	Data Elements	7-91
7.4.1	Component Type.....	7-91
7.4.2	Invoke Identifier.....	7-92
7.4.3	Linked Identifier	7-92
7.4.4	Null Identifier.....	7-93
7.4.5	Operation Value	7-94
7.4.6	Sequence	7-95
7.4.7	Error Value.....	7-95
7.4.8	Problem Value.....	7-96
7.4.9	Length	7-98
7.4.9.1	Short Form (Lengths Up To 127 Octets).....	7-98
7.4.9.2	Long Form (Lengths Greater Than 127 Octets).....	7-99
7.4.10	Object Identifier Value.....	7-99
7.4.11	Interpretation Value	7-100
7.4.12	Network Protocol Profile Value.....	7-101
7.4.13	Notification Value.....	7-102
7.5	ASN.1 Descriptions.....	7-103
7.5.1	Common ASN.1 descriptions	7-103
7.5.2	ASN.1 Description for Name Identification	7-111
7.5.3	ASN.1 Description for Traveling Class Mark	7-114
8.	D-Channel Backup	8-1
8.1	Introduction	8-1
8.2	General Protocol Description.....	8-2
8.2.1	Non-facility Associated Signaling with Backup D-Channel	8-2
8.2.2	Primary and Backup D-Channels.....	8-2
8.2.3	D-Channel States.....	8-3
8.2.4	Difference Between Active and Standby D-Channels	8-5
8.2.5	Conditions to Switch D-Channel	8-5
8.2.6	General Protocol	8-6
8.3	Protocol Descriptions at Layers 2 and 3	8-8
8.3.1	Initialization	8-8
8.3.2	Connection Verification Procedure on a Standby D-Channel	8-8
8.3.3	Verification of an Active D-Channel	8-9
8.3.4	Switchover Procedure	8-9

8.3.4.1	Declaring D1 as Failed	8-9
8.3.4.2	Initiating Switchover to D2	8-11
8.3.4.3	Establishing Layer 3 Call-Control Signaling on D2.....	8-11
8.3.4.4	Maintenance Switchover	8-13
8.3.5	Parameters and Timers	8-14
8.3.5.1	D-Channel Backup (DCB).....	8-14
8.3.5.2	Primary D-Channel (D1)	8-14
8.3.5.3	Backup D-Channel (D2).....	8-14
8.3.5.4	T200.....	8-14
8.3.5.5	T203.....	8-15
8.3.5.6	T309.....	8-15
8.3.5.7	T321.....	8-15
8.3.6	SERVice and SERVice ACKnowledge Messages in The D-Channel Backup Protocol.....	8-15
8.3.6.1	SERVice and SERVice ACKnowledge Message Usages.....	8-16
8.3.6.2	Coding of Channel Identification in SERVice/SERVice ACKnowledge Messages.....	8-16
8.3.6.3	Coding of Change Status in SERVice/SERVice ACKnowledge Messages.....	8-16
8.3.7	Interactions with Restart Procedures.....	8-17
8.3.7.1	Interactions with User-Side Initiated Restart Procedures	8-17
8.3.7.2	Interactions with Network-Side Initiated Restart Procedures	8-17
8.3.8	Error Handling for Maintenance Messages	8-18
8.4	Maintenance Operations.....	8-18
9.	PRI B-Channel Availability Signaling Procedures.....	9-1
9.1	B-Channel Status Categories.....	9-1
9.1.1	In Service (IS)	9-2
9.1.2	Out Of Service (OOS).....	9-2
9.1.2.1	Call Origination	9-3
9.1.2.2	Call Termination.....	9-3
9.2	Relationship With SPCS-U Internal States	9-4
9.3	Relationship With Restart Procedures	9-5
9.4	Sending a SERVice Message	9-10
9.5	Receiving a SERVice Message	9-10
9.6	Collisions.....	9-11
9.6.1	SERVice Message Collision	9-11
9.6.2	SETUP Message Collision.....	9-13
9.7	Status Audits	9-13
9.8	Status on Provisioning.....	9-14
9.9	Error Conditions.....	9-15
9.9.1	Receipt of a SERVice Message When Not Subscribed	9-15
9.9.2	Receipt of a Solicited Message With Invalid Contents.....	9-15

9.9.3	Unsolicited SERvice ACKnowledge Message	9-16
9.10	Relationship of B-Channel Availability Control With D-Channel Switchover	9-16
10.	Generic Common Element Procedures	10-1
10.1	ROSE Component Signaling Procedures	10-1
10.2	Call-Associated User-Side PRI Signaling Procedures	10-1
10.2.1	Signaling During Call Origination	10-2
10.2.1.1	Sending of a SETUP Message	10-2
10.2.1.2	Receipt of a PROgress Message	10-2
10.2.1.3	Receipt of an ALERTing Message	10-3
10.2.1.4	Receipt of a CONNect Message	10-3
10.2.1.5	Receipt of a FACILITY Message	10-3
10.2.1.6	Sending of a FACILITY Message	10-4
10.2.2	Signaling During Call Termination	10-4
10.2.2.1	Receipt of a SETUP message	10-4
10.2.2.2	Sending of a PROgress, ALERTing, or CONNect message	10-5
10.2.2.3	Receipt of a FACILITY message	10-5
10.2.2.4	Sending of a FACILITY message	10-6
10.2.3	Signaling During an Active Call	10-7
10.2.3.1	Receipt of a FACILITY Message	10-7
10.2.3.2	Sending of a FACILITY Message	10-7
10.2.4	Signaling During Call Clearing	10-8
10.2.4.1	Receipt of a DISConnect Message	10-8
10.2.4.2	Receipt of a RELEase Message	10-8
10.2.4.3	Receipt of a RELEase COMplete Message	10-8
10.2.4.4	Sending of a DISConnect, RELEase, or RELEase COMplete Message	10-9
10.2.4.5	Receipt of a FACILITY Message	10-10
10.2.4.6	Sending of a FACILITY Message	10-10
10.2.5	Error Treatment	10-11
10.2.5.1	Protocol Error Treatment	10-11
10.2.5.2	Malfunctioning Data Link	10-14
11.	Features/Circuit-Mode Services	11-1
11.1	Calling Number Identification Services	11-1
11.1.1	High-Level Feature Description	11-1
11.1.2	Originating Calling Number Service	11-4
11.1.3	Terminating Calling Number Service	11-6
11.1.4	Originating Redirecting Number Service	11-8
11.1.5	Terminating Redirecting Number Service	11-9
11.2	Calling Name Identification Services	11-11
11.2.1	High-Level Feature Description	11-11
11.2.2	Originating Calling Name Service	11-14

11.2.3	Terminating Calling Name Service.....	11-16
11.2.4	Redirecting Name Service at the Base (Forwarding) SPCS-U	11-18
11.2.5	Redirecting Name Service at the Terminating SPCS-U	11-20
11.2.6	Error Treatment and Abnormal Events	11-22
11.2.7	Procedures for Coding the Facility Information Element	11-23
Appendix A:	Data Dictionary	A-1
A.1	Scope and Definition	A-1
A.2	Allowed Data Values	A-1
A.3	Data Dictionary	A-2
References	References-1
Glossary	Glossary-1

List of Figures

Figure 2-1.	TR-NWT-001268 Call Origination Reference Model.....	2-1
Figure 2-2.	GR-2985-CORE Call Origination Reference Model.....	2-2
Figure 6-1.	Call Origination Reference Model for GR-2985-CORE.....	6-1
Figure 7-1.	General Message Organization Example	7-24
Figure 7-2.	Protocol Discriminator	7-24
Figure 7-3.	Maintenance Protocol Discriminator.....	7-25
Figure 7-4.	Call Reference Information Element.....	7-25
Figure 7-5.	Global Call Reference Coding.....	7-27
Figure 7-6.	Message Type.....	7-27
Figure 7-7.	Formats of Information Elements.....	7-29
Figure 7-8.	Locking Shift Information Element.....	7-31
Figure 7-9.	Bearer Capability Information Element	7-32
Figure 7-10.	Call State Information Element.....	7-35
Figure 7-11.	Called Party Number Information Element.....	7-38
Figure 7-12.	Called Party Subaddress Information Element.....	7-41
Figure 7-13.	Calling Party Number Information Element	7-42
Figure 7-14.	Calling Party Subaddress Information Element	7-45
Figure 7-15.	Cause Information Element.....	7-46
Figure 7-16.	Channel Identification Information Element.....	7-60
Figure 7-17.	High-Layer Compatibility Information Element.....	7-64
Figure 7-18.	Low-Layer Compatibility Information Element.....	7-66
Figure 7-19.	Network-Specific Facilities Information Element.....	7-67
Figure 7-20.	Progress Indicator Information Element.....	7-71
Figure 7-21.	Redirecting Number Information Element	7-74
Figure 7-22.	Redirecting Subaddress Information Element.....	7-78
Figure 7-23.	Restart Indicator Information Element	7-80
Figure 7-24.	Transit Network Selection Information Element.....	7-81
Figure 7-25.	Change Status Information Element.....	7-84
Figure 7-26.	Operator Access Information Element	7-85
Figure 7-27.	Originating Line Information (OLI) Information Element.....	7-86
Figure 7-28.	User Entered Code Information Element	7-87
Figure 8-1.	Example of Non-Facility Associated Signaling Controlling Three DS1 Facilities.....	8-20
Figure 8-2.	Example of Non-Facility Associated Signaling with Backup D-Channel Controlling Three DS1 Facilities.....	8-20
Figure 8-3.	Example of Facility Associated Signaling on Each of Three Primary Rate Interfaces	8-21
Figure 8-4.	Conceptual Architecture of PRI with D-Channel Backup.....	8-21
Figure 8-5.	Connection Verification Procedure	8-22

Figure 8-6.	D-Channel Backup - Normal Operation	8-23
Figure 8-7.	Normal Switch-over (State Diagram).....	8-24
Figure 8-8.	Initialization Procedure.....	8-24
Figure 8-9.	Declaring an Active D-Channel as Failed	8-25
Figure 8-10.	Normal Switchover (Sequence Diagram).....	8-26

List of Tables

Table 5-1.	Office Parameters	5-2
Table 5-2.	Subscription Parameters Per User-Side PRI.....	5-6
Table 5-3.	Timers At The SPCS-U	5-13
Table 6-1.	Call State, Terminating Interface, Optional I.E. Error In A SETUP	6-60
Table 6-2.	Call State, Terminating Interface, After SETUP Message Received	6-60
Table 6-3.	Call States, Originating Interface	6-62
Table 6-4.	Call States Resulting From Call Clearing Events.....	6-65
Table 6-5.	Call Processing If Far-END SPCS-N Is In A Clearing Call State.....	6-79
Table 7-1.	Messages.....	7-2
Table 7-2.	ALERTing Message Content.....	7-3
Table 7-3.	ALERTing Message Content.....	7-4
Table 7-4.	CALL PROCeeding Message Content	7-4
Table 7-5.	CALL PROCeeding Message Content	7-5
Table 7-6.	CONNect Message Content.....	7-5
Table 7-7.	CONNect Message Content.....	7-6
Table 7-8.	CONNect ACKnowledge Message Content.....	7-6
Table 7-9.	CONNect ACKnowledge Message Content.....	7-7
Table 7-10.	DISConnect Message Content.....	7-7
Table 7-11.	DISConnect Message Content.....	7-8
Table 7-12.	PROGress Message Content.....	7-8
Table 7-13.	PROGress Message Content.....	7-9
Table 7-14.	RELEase Message Content	7-10
Table 7-15.	RELEase Message Content	7-10
Table 7-16.	RELEase COMplete Message Content	7-11
Table 7-17.	RELEase COMplete Message Content	7-11
Table 7-18.	REStart Message Content.....	7-12
Table 7-19.	REStart Message Content.....	7-12
Table 7-20.	REStart ACKnowledge Message Content.....	7-13
Table 7-21.	REStart ACKnowledge Message Content.....	7-13
Table 7-22.	SERVice Message Content.....	7-14
Table 7-23.	SERVice Message Content.....	7-14
Table 7-24.	SERVice ACKnowledge Message Content.....	7-15
Table 7-25.	SERVice ACKnowledge Message Content.....	7-15
Table 7-26.	SETUP Message Content	7-16
Table 7-27.	SETUP Message Content	7-17
Table 7-28.	STATus Message Content	7-19
Table 7-29.	STATus Message Content	7-20
Table 7-30.	STATus ENQuiry Message Content	7-20
Table 7-31.	STATus ENQuiry Message Content	7-21

Table 7-32.	FACILITY Message Content	7-21
Table 7-33.	FACILITY Message Content	7-22
Table 7-34.	Message Types	7-28
Table 7-35.	Information Element Identifiers Defined for Codeset 0.....	7-30
Table 7-36.	Call States.....	7-35
Table 7-37.	Global Interface States.....	7-37
Table 7-38.	Type of Number and Numbering Plan	7-38
Table 7-39.	IA5 Characters.....	7-39
Table 7-40.	Type of Subaddress	7-41
Table 7-41.	Odd/Even Indicator.....	7-41
Table 7-42.	Type of Number/Numbering Plan	7-42
Table 7-43.	Origin of Number and Presentation Status	7-43
Table 7-44.	Digits	7-43
Table 7-45.	Type of Subaddress	7-45
Table 7-46.	Odd/even Indicator	7-45
Table 7-47.	Coding Standard	7-47
Table 7-48.	General Location	7-47
Table 7-49.	Cause Classes	7-50
Table 7-50.	Diagnostic.....	7-50
Table 7-51.	ITU-T Standardized Cause Values	7-51
Table 7-53.	Network Specific Cause Value.....	7-52
Table 7-52.	National Standardized Cause Values.....	7-52
Table 7-54.	Interface Identifier	7-61
Table 7-55.	Interface Type.....	7-61
Table 7-56.	Preferred/Exclusive	7-61
Table 7-57.	D-channel Indicator	7-61
Table 7-58.	Channel Selection Indication.....	7-62
Table 7-59.	Channel Number.....	7-62
Table 7-60.	Type of Network Identification	7-67
Table 7-61.	Network Identification Plan.....	7-68
Table 7-62.	Network Identification.....	7-68
Table 7-63.	Expansion	7-69
Table 7-64.	Service/Feature	7-69
Table 7-65.	Facility Coding Value.....	7-69
Table 7-66.	Service Parameters	7-70
Table 7-67.	Coding Standard	7-71
Table 7-68.	Location Values.....	7-72
Table 7-69.	Progress Descriptor Values	7-73
Table 7-70.	Type of Number and Numbering Plan Identification	7-75
Table 7-71.	Origin of Number and Presentation Status	7-75
Table 7-72.	Reason for Redirection	7-76
Table 7-73.	Digits	7-76
Table 7-74.	Type of Subaddress	7-79
Table 7-75.	Odd/Even Indicator.....	7-79

Table 7-76.	Class of Service	7-80
Table 7-77.	Type of Network Identification	7-81
Table 7-78.	Network Identification Plan.....	7-82
Table 7-79.	Facility Information Element.....	7-82
Table 7-80.	Protocol Profile	7-83
Table 7-81.	Preference	7-84
Table 7-82.	New Status	7-84
Table 7-83.	Type of Service.....	7-85
Table 7-84.	Type of Access	7-85
Table 7-85.	Invoke Component Content.....	7-88
Table 7-86.	Return Result Component Content.....	7-88
Table 7-87.	Return Error Component Content.....	7-89
Table 7-88.	Reject Component Content.....	7-89
Table 7-89.	Interpretation Component Contents.....	7-90
Table 7-90.	Network Protocol Profile Component Contents.....	7-90
Table 7-91.	Component Type Data Element	7-91
Table 7-92.	Component Type	7-91
Table 7-93.	Invoke Identifier Data Element	7-92
Table 7-94.	Linked Identifier Data Element	7-92
Table 7-95.	Null Identifier Data Element	7-93
Table 7-96.	Operation Value Data Element.....	7-94
Table 7-97.	Operation Value Tag	7-94
Table 7-98.	Sequence Data Element	7-95
Table 7-99.	Error Value Data Element	7-95
Table 7-100.	Error Value Tag	7-95
Table 7-101.	Problem Value Data Element	7-96
Table 7-102.	Problem Value Tag.....	7-96
Table 7-103.	General Problem	7-97
Table 7-104.	Invoke Problem.....	7-97
Table 7-105.	Return Result Problem.....	7-98
Table 7-106.	Return Error.....	7-98
Table 7-107.	Short Form Length Format	7-98
Table 7-108.	Long Form Length Format	7-99
Table 7-109.	One-Octet Subidentifier Format	7-99
Table 7-110.	Two-Octet Subidentifier Format	7-99
Table 7-111.	Object Identifier Data Element.....	7-100
Table 7-112.	Interpretation Value Format	7-100
Table 7-113.	Interpretation Value	7-101
Table 7-114.	Network Protocol Profile Value Format.....	7-101
Table 7-115.	Network Protocol Profile.....	7-101
Table 7-116.	Notification Value Data Element	7-102
Table 7-117.	Notification Value Tags.....	7-102
Table 9-1.	Near-End States Resulting from SERVICE Message Collisions.....	9-12
Table A-1.	Explanation of Columns	A-1

Table A-2.	Types and Definitions.....	A-2
Table A-3.	Data Dictionary.....	A-3